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ABSTRACT

The Georgia Prekindergarten Program was established in 1993 to provide the state's 4-year-olds with high-quality preschool experiences. The Early Childhood Study followed the development of young children attending programs funded through the Prekindergarten (Pre-K) Program or Head Start and children eligible for the Pre-K program attending private preschools or child care centers; ascertained the quality of their experiences; and estimated the effects of the Prekindergarten Program from preschool entry through kindergarten entry. Study measures included direct assessments at the beginning and end of preschool and the beginning of kindergarten, ratings by preschool and kindergarten teachers, surveys of teachers and parents, and classroom observations. Of the 630 children included in the original study, 466 remained at the beginning of kindergarten. Among the major findings is that Georgia's 4-year-olds began preschool scoring below national norms on three of the four norm-referenced assessments of language development and cognitive skills. Children attending preschool in Georgia as well as those attending the Pre-K program made gains of at least four points against national norms on all four standardized assessments from preschool entry until kindergarten entry. Head Start and Pre-K offered the highest quality levels, and Pre-K offered high quality services most consistently. The Pre-K teachers had higher education levels than those in other programs. After family and individual characteristics were taken into account, Pre-K children had caught up with children from private preschools on all five directly assessed skills and were

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significantly better prepared for kindergarten than Head Start children on three of five directly assessed language and cognitive measures. Kindergarten teachers rated Pre-K children higher than Head Start children on readiness, academic, and communication skills and higher than private preschool children on social behaviors. Those Pre-K children from high poverty households demonstrated skills equivalent to those of Head Start children on four of six language and cognitive assessments at preschool entry, but they were significantly better prepared for kindergarten on six of eight directly assessed language and cognitive measures. Head Start teachers systematically rated the readiness of their children higher than direct assessments would support and high relative to other preschool teachers. Summer learning loss between the end of preschool and the beginning of kindergarten was substantial, especially for African American children. (Contains 42 references.) (KB)

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Georgia State University ANDREW YOUNG SCHOOL OF POLICY STUDIES

REPORT OF THE FINDINGS FROM THE EARLY CHILDHOOD STUDY: 2001-02

Gary T. Henry, Laura W. Henderson, Bentley D. Ponder, Craig S. Gordon, Andrew J. Mashburn, and Dana K. Rickman

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REPORT OF THE FINDINGS FROM THE EARLY CHILDHOOD STUDY: 2001-02

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EXECUTIVE SUMMARY

REPORT OF THE FINDINGS FROM THE EARLY CHILDHOOD STUDY: 2001-02

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In 2001, the Early Childhood Study began to examine the development of four year-olds in early childhood programs, preschools and child care centers in Georgia, which are referred to in this report collectively as preschools. Purposes for the study included:

- following the development of young children attending publicly funded and private preschools;
- ascertaining the quality of their experiences; and
- estimating the effects of Georgia's Pre-K Program.

Study methods. Probability samples of three groups of children attending preschool were included in the study: 1) children enrolled in Georgia's Prekindergarten Program (Pre-K); 2) children attending Head Start as four year-olds (Head Start); and 3) children attending private preschools or child care centers (private preschool) who were eligible for the Georgia Pre-K Program. Study measures included direct assessments at the beginning of preschool, the end of preschool, and the beginning of kindergarten, ratings by preschool and kindergarten teachers, surveys of teachers, surveys of parents' attitudes and involvement, and observations of classroom activities. Of the 630 children who were included in the study originally, 466 (74 percent) remained in the study at the beginning of kindergarten.

Summary of Major Findings

Overall Findings about Georgia's Preschools Serving Four Year-Olds

Overall, Georgia's four year-olds began preschool scoring below national norms on three of the four norm-referenced assessments of language development and cognitive skills. This pattern also held for children in Georgia's Pre-K Program. Consistent with its program mission to serve economically disadvantaged families, children in Head Start programs started substantially lower on all directly assessed skills at the beginning of their year in the program as four year-olds.

Children who attended preschool in Georgia made gains of at least four points against the national norms on all four standardized assessments from the time

they entered preschool until they entered kindergarten the following year. Once again, this pattern held for the children attending Georgia's Pre-K Program.

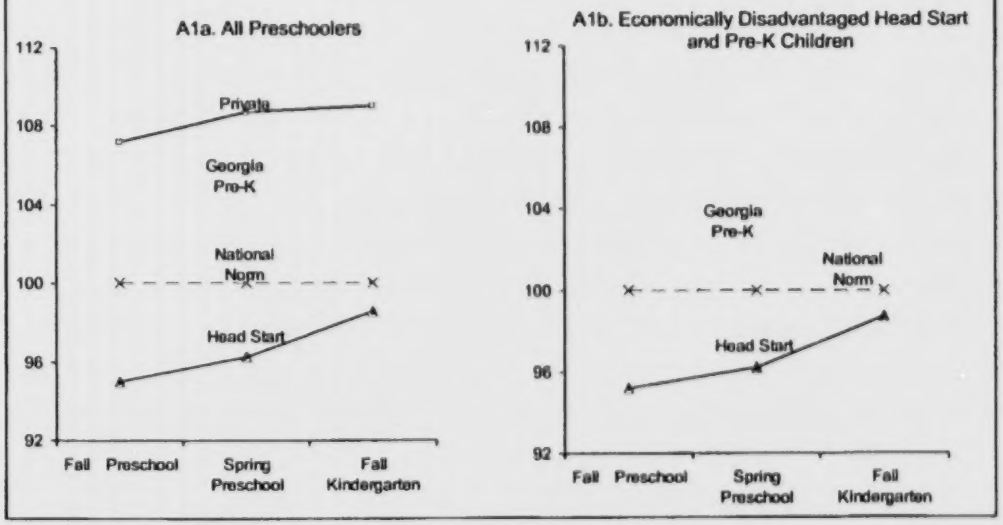
Four year-olds in Georgia had preschool experiences that varied widely in terms of quality. Head Start and Pre-K offered the highest levels of quality and Pre-K offered high quality services most consistently. Teachers in Georgia Pre-K Program classes had significantly higher levels of education than Head Start or private preschool teachers.

On average, children enrolled in Head Start were from homes and families with the greatest disadvantages, children enrolled in private preschools were from families with the fewest disadvantages, and children who attended Georgia Pre-K were from families with wide ranges in economic resources, parental education, involvement with children and schools, and family structures. Some families of children who attended Georgia Pre-K closely resemble those of children who attended Head Start and others are very similar to families of four year-olds attending private preschools.

Outcomes and Impacts of Georgia's Pre-K Program

After accounting for family characteristics and individual characteristics, children from Georgia's Pre-K Program had caught up with children from private preschools on all five directly assessed skills and were significantly better prepared for kindergarten than children enrolled in Head Start on three of five directly assessed measures of language and cognitive skills. The patterns are illustrated by the children's average scores on a test of letter and word recognition (Figure A1a).

Figure A1: Letter and Word Recognition for Children in Georgia Pre-K, Private Preschools, and Head Start



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In terms of kindergarten readiness, academic skills, and communication skills, kindergarten teachers rated children from Pre-K higher than Head Start children. Furthermore, children who attended Pre-K were rated higher on social behaviors than children from private preschools. These differences remained after accounting for family and individual characteristics as well as language, communication, and cognitive skills at the children's entry into preschool.

The consistent high quality of Georgia's Pre-K Program is a primary factor that reduces the initial gap between private preschoolers and lottery funded Pre-K children to statistical insignificance by the beginning of kindergarten. Across the board, the developmental outcomes of four year-olds were raised by high quality preschool experiences.

To better understand the impacts of Georgia's Pre-K Program on economically disadvantaged children, Pre-K children from high poverty households were matched with the Head Start sample. While matching cannot eliminate all differences between the groups of children, the two groups demonstrated equivalent skills on four of six assessments of language and cognitive skills, but the Pre-K children scored higher on the other two, at the beginning of their preschool year. The children with significant economic disadvantages who attended Georgia's Pre-K Program were significantly better prepared for kindergarten than the children in Head Start on six of eight directly assessed measures of language and cognitive skills and four out of five skills ratings by kindergarten teachers after accounting for individual and family characteristics and selection bias. The gains made by the two groups of children were similar on all six measures, except that children from Head Start gained more vocabulary. The average development of the children in both groups is illustrated for one standardized assessment in Figure A1b.

Additional Policy Relevant Findings

Head Start teachers systematically rated the readiness of children in their classes higher than skills measured by direct assessments would support and high relative to other preschool teachers. These ratings indicate that the standards used by Head Start teachers to assess readiness for kindergarten were not aligned with the skills that children need to be successful in kindergarten.

Summer learning loss between the end of the preschool year and the beginning of the kindergarten year is substantial, especially for African American children.

Conclusions

Georgia's Pre-K Program provides effective early education experiences that reduced the gaps between where children began preschool as four year-olds and where they began kindergarten. Georgia Pre-K provides high quality services on

a consistent basis, which reduces differences in skills between the children in Georgia's Pre-K Program and children in private preschool.

From all indications, high quality preschool programs which focus on school readiness, language development, and cognitive skills were needed to bring Georgia's four year-olds closer to their peers across the nation. Higher levels of program quality benefited children from all three groups. The efforts that Georgia's Pre-K Program expends in monitoring, technical assistance, and training support seem to be integral to achieving high quality classrooms for four year-olds. Training for teachers who have been out of school for longer times is particularly warranted, in light of the evidence showing that lower quality occurred in classrooms led by teachers who were furthest away from their own educational experiences.

In addition, Georgia's Pre-K Program is very effective in serving four year-olds from families living in poverty. Children from Pre-K begin kindergarten better prepared than children from Head Start, but both groups make comparable gains from the beginning of preschool until the beginning of kindergarten. In some cases, Head Start and Georgia Pre-K are provided by the same organization but the programs experienced by the children are very different. Differences in outcomes do not appear to be related to who operates the program but to differences in the programs. The differences in outcomes may be attributable to (1) program priorities, (2) the program model, (3) the quality of the program, (4) resources available for instruction or (4) the monitoring and oversight.

Georgia's Pre-K Program emphasizes overall school readiness and specific learning objectives that are related to later school success. The Pre-K Program provides high quality, developmentally oriented programs on a consistent basis over 180 days per year for at least 6.5 hours per day. The services are frequently monitored, with results for each classroom posted on the Internet, and on-site technical assistance is routinely provided.

The federal Head Start Program provides more comprehensive services for the children and their families, reducing the resources available for developmentally oriented services in the classrooms. Most of the Head Start programs in Georgia offer preschool services for at least six hours a day, five days per week. A substantial amount of the funding for Head Start ends up paying for additional services (for example, nutrition, medical and dental care, and family support) and other costs. While the average expenditure per child is higher for Head Start than Pre-K, this study did not estimate the costs for comparable services delivered by the two programs.

Extending and intensifying the current collaboration to establish programmatic partnerships between Pre-K and Head Start offers opportunities to more effectively serve the needs of children with disadvantages. For example, Head Start, which has demonstrated effectiveness in providing developmental services

for younger children, could concentrate on providing comprehensive services for 2-3 year-olds and transitioning those children into Georgia Pre-K Program classes when they are four years-old, while continuing some services for the children who need them. This type of partnership could expand developmentally oriented services available to children from economically disadvantaged households.

In addition, more formal partnerships between Georgia's Pre-K Program and Head Start could produce creative ways to provide afternoon, evening and summer services to enhance the language, cognitive, and emotional development of children from 2-5. Care should be taken to take advantage of the efficiencies in the provision of these services in order to make them available to the largest number of children possible without compromising quality.

Finally, collaborations could be intensified between Georgia's Pre-K Program, Head Start, and the Georgia Department of Education to define the most important skills and dispositions for children to develop prior to entering kindergarten. Currently, most Head Start programs have few direct contacts with the schools where the children will attend kindergarten, and few ways to learn how kindergarten teachers define school readiness. It is very important that all preschool teachers have a clear understanding of the skills and predispositions that children need to be ready for kindergarten. Similarly, it is important for kindergarten teachers to understand, assess, and build upon these skills and predispositions. Teacher training is important to instill common expectations, increase proficiency in assessing individual children's skills, and enhance effective instruction.

Collaboratively identifying the skills and dispositions important for kindergarteners could provide a concrete focus for preschool teachers and allow kindergarten teachers to assess and begin building upon their students' skills more quickly. Balancing individual children's needs and instructional objectives is a difficult assignment for teachers of young children that can be supported by clarifying and communicating the expectations and coordinating the transition of children from preschool through their early elementary school experiences.

Whether achieved by partnerships or other means, summer programs focused on specific developmental goals and dedicated to serving more children from disadvantaged families at an earlier age are likely to yield benefits as well. This should benefit the individual children as well as close the gap between minority and White test scores down the road. Programs such as these can be fun as well as beneficial for children, increasing skills and building positive attitudes toward schooling by experiencing accomplishment and success early on.

This report provides a comprehensive view of Georgia's preschoolers' developmental outcomes as they move into kindergarten. These children were developing rapidly during the year that we have reported on here. We will

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continue to chart the developmental progress of these children on a wider variety of measures in future years. We will, once again, use direct assessments and will add more measures of behavior at school and home, positive attitudes toward schooling, and early indicators of potential problems, such as being held back in kindergarten when their classmates move on to first grade. A second report will be available later in 2003.

The Early Childhood Study: Findings from 2001-2002

Chapter 1
Study Purpose and Limitations

In 2001, the Andrew Young School of Policy Studies at Georgia State University began the Early Childhood Study (ECS) to examine:

1. differences in the families and children who chose to enroll in three types of early childhood programs: Georgia's Pre-K Program, Head Start, and other full-day preschools;
2. differences in the quality of preschool experiences for children in the three types of programs; and
3. differences, if any, in the children's outcomes and gains from preschool entry (fall 2001) through kindergarten entry (fall 2002) in language and communication skills, cognitive development, health/physical well-being, and social and emotional development that are related to differences in programs and preschool quality, after accounting for differences in background and demographic characteristics. In later reports, outcomes and gains through spring 2003 and spring 2004 will be analyzed.

A central objective of the current study is to estimate the effects of Georgia's Prekindergarten Program (Pre-K) on four year-olds. In most rigorous evaluations of early childhood education programs (Gilliam and Zigler, 2000), children who participated in early childhood education programs are often compared with children who have not participated in developmentally oriented programs that have specific learning objectives related to the children's school readiness (Reynolds 2000; Reynolds, et al. 2001; Schweinhart and Weikart 1997; St. Pierre, et al. 1999).

Since Georgia's Pre-K Program is available to all four year-olds in the state whose parents choose to enroll them and a majority of the eligible children attend, it is nearly impossible to find four year-old children in Georgia who are similar in most ways to children in Pre-K but who have not attended early childhood education programs. Therefore, this study compares four year-olds attending Georgia's Pre-K Program with children who attended other early childhood education programs, referred to in this report as preschools. This comparison represents a higher bar for Georgia's Pre-K than the standard of comparison used in evaluations of other programs. In future years, a group of children who did not participate in formal preschool will be added to the comparisons. The central evaluation questions addressed in this report are:

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1. Are the children who participated in Georgia's Pre-K Program more or less ready for kindergarten at the end of their preschool experience than children who attended other preschool programs as four year-olds?
2. Do children participating in Pre-K develop more, less or about the same as children in other formal preschool programs from the beginning of preschool through entry into kindergarten?
3. How does the quality of preschool experiences for children in Pre-K compare with the experiences in other preschools, and how much does quality affect children's outcomes?

Two issues are particularly important for addressing these questions. First, understanding the other groups of children to which children participating in Georgia's Pre-K Program are compared. Second, selecting the measures on which the comparisons are drawn.

Three Groups of Preschool Children in Georgia

In 1995, Georgia became the first state in the country to offer universal (non-means tested) prekindergarten to all children whose parents chose to enroll them. By 2001, 63,613 children, or 52 percent of the estimated population of four year-olds in Georgia, participated in the program for that school year. When Head Start's 10,976 spaces for four year-olds are included, publicly subsidized early childhood programs are provided for 61.3 percent of the state's four year-olds. With publicly subsidized preschool as prevalent as it was in Georgia in 2001, selecting children to compare with those enrolled in Pre-K presented a serious challenge. This section describes the populations from which the three groups of children in the study were drawn. It is important to note that some of Georgia's publicly funded Pre-K sites are overseen by organizations that operate private preschools and some are operated by Head Start providers. However, these programs operate quite differently and are governed by different regulations. In most cases, facilities are entirely separate and classrooms are always separate, distinct, and usually very different in terms of the resources available to the children.

<u>Georgia Pre-K</u>
Funded by earmarked proceeds from the Georgia Lottery, the Georgia Pre-K Program began as a means tested program in the 1993-94 school year. Beginning with the 1995-96 academic year, Georgia became the first state in the nation to offer Pre-K for all four year-olds whose parents chose to enroll them regardless of household means. By 1996-97, the program served over 57,000 four year-olds annually, and in 2001-2002 had expanded to serve 63,613 children, 25,711 of whom were classified as at-risk (Georgia Office of Educational Accountability). The state expends approximately $216.3M to operate the program.

The Pre-K Program is administered at the state level but the providers may be local public schools, not-for-profit organizations, or private for-profit firms. Each provider must receive approval from the state's Office of School Readiness (OSR) to offer one or more Pre-K classes. Children may attend any of the 3,152 Pre-K classes offered by 1,683 providers at no tuition cost to the child's family for the 6.5-hour instructional program. Private-for-profit providers offer the largest number of classes (1,460), but are closely followed by local public school systems (1,325), which together offer 88 percent of the classrooms. Not-for-profit providers include Head Start agencies (40 classes) and non-sectarian entities operating within faith-based organizations (Georgia Office of School Readiness, 2001).

In addition to health, safety, and nutritional regulations, the state agency that administers Georgia Pre-K also regulates instructional services. To qualify as lead teachers, professional staff must have at least a high school degree and specialized training (Child Development Associate) or a college degree in a field related to child development or education. Each classroom can enroll up to 20 students, and must have a lead teacher and teacher's aide in the classroom whenever the children are present. Instruction must be based on an approved curriculum, including national curricula such as High Scope, Creative, High Reach, and Montessori or a locally developed or proprietary curriculum that must be pre-approved by OSR.

In exchange for a flat payment per student from OSR, providers must agree to offer full-day services (at least 6.5 hours) that follow the local school calendar. However, the flat payment, which ranges from $2,200 to $3,475 per student, varies slightly based on program location and lead teacher credentials. For example, payments for students in a classroom with a teacher certified in early childhood education are slightly greater than payments for students who have a lead teacher with lesser credentials. In addition, OSR funds transportation subsidies ($165 per student per year) for providing transportation to children classified as economically disadvantaged.

Head Start

Head Start is a national program that provides comprehensive developmental services for low-income preschool children and their families. Currently funded at approximately $6.2 billion nationally, Head Start serves over 900,000 children and their families each year (Congressional Research Service, 2003). In Georgia, Head Start programs serve nearly 20,000 children ranging from 3 to 5 years-old in 33 different programs covering 157 of Georgia's 159 counties (Georgia Head Start Collaboration Office, 2003). For the 2001-2002 school year, Georgia Head Start provided spaces for 10,976 four year-olds. The program in Georgia is designed to address developmental goals for children, employment and self-sufficiency goals for adults, and support for parents in their work and in their roles as parents (Georgia Office of School Readiness, 2002).

The children enrolled in Head Start programs across the south (including Georgia) differ from children in Head Start programs across the nation. A descriptive report of Head Start families in the FACES Study indicates that children in the southern region face greater risk factors than their counterparts in other regions of the nation. For example, Head Start children living in the south are the least likely to have regular healthcare coverage compared to children living in other regions. In terms of family characteristics, the primary caregiver of a Head Start child living in the south is more likely to be under the age of 29, have a lower income level, and have a lower education level than primary caregivers of Head Start children living in other parts of the nation (US Department of Health and Human Services, 2002). Considering the differences among children participating in the Head Start program nationwide, the findings for Georgia may differ from the Head Start population as a whole.

Private Preschools

Private preschools for the purpose of this study are schools or child care centers that offer educational and developmental programs for four year-olds in exchange for tuition or fees for these services. The families of the children receiving the services usually pay the school or center directly. These preschools include private-not-for-profit programs, such as church-based schools, and private-for-profit programs, such as child care facilities or private college-preparatory day schools. All of the preschools included as private preschools are licensed by the state. However, the preschools vary in a number of significant ways, including the population of four year-olds served and whether the teachers use a specific curriculum in the preschool classrooms.

The population of families and children served by private preschools in Georgia has been affected significantly by the options for parents to enroll their children in Georgia Pre-K or Head Start. Many preschools that formerly provided services to four year-olds on a fee for service basis now provide educational services funded by the Georgia Pre-K Program. Using site directors' estimates of the socio-economic status of the families served in their schools, the private preschools serve more affluent families when compared to the families served by Pre-K and Head Start. Although the range of parents' socio-economic status in the private preschools was almost identical to that as reported by the Pre-K directors, the average socio-economic status was significantly higher in the private preschools. Within the private sector, the not-for-profit centers and schools were much more homogenous than the for-profit sites. While on the whole private preschools serve families with fewer disadvantages, there are significant differences among these preschools.

Throughout the report, children from these three groups are referred to as Georgia preschoolers, since these three groups comprise a probability sample of the four year-olds in Georgia who attended a formal early education program. The development of children enrolled in these three programs is charted throughout the report. Differences in the families and children who are enrolled in

these programs are detailed in Chapter 2 of this report. While differences exist, it is important to understand that the population of children in Georgia's Pre-K Program overlaps significantly with the children in the other two groups. It is important to compare rates of gain and developmental status of the groups during preschool and upon entry into kindergarten. We have accounted for differences in family risk factors and children's characteristics in Chapter 7 and focused on a sub-sample of children from economically disadvantaged homes in Chapter 8. Analyses are ongoing to further reduce the impacts of initial differences in the children, but, because this study did not randomly assign children to the three types of preschools, not all of the differences are likely to be controlled.

Measuring Readiness and Other Child Outcomes

A highly salient objective for the Pre-K Program and for judging the success of the Program is readiness for school. Unfortunately, a child's readiness for school is best measured by their successes in school, which can be assessed only after a number of years and certainly after evaluation information is needed. In this study, we have measured numerous leading indicators of readiness, not actual school success. Being ready for kindergarten is a complex issue, which experts believe requires cognitive skills, pre-academic skills, social-emotional behaviors, communication and language skills, as well as good health and physical well-being. Therefore, the ECS measured multiple outcomes that are considered to be indicators of school readiness, many of which were measured at preschool entry and at the end of the academic year. These measures came from several sources including direct assessments by trained staff, teachers' ratings, and parents' ratings, and they cover all of the dimensions that have been identified as important indicators of school readiness.

Assessing the readiness of young children for school not only requires multiple indicators, but prior research has shown that some outcomes fade over time while others can be detected only after several years (Barnett, 1992; Schweinhart and Weikart, 1997; Peisner-Feinberg, et al., 2000; Garces, Thomas, and Currie, 2002). This study reports on outcomes measured at the end of the children's preschool experience and beginning of kindergarten. The impacts reported here as well as the children's individual developmental trajectories might change in later years as the children age. In the Georgia Pre-K Longitudinal Study (Henry, et al., 2003), according to teachers' ratings, some children's academic skills diminished in the second and third grades. The ECS is expected to continue for at least three years, during which time additional effects may emerge and other effects may diminish.

This report of the ECS findings should be considered tentative in two ways. First, the outcome measures are leading indicators of school readiness, not actual measures of school success. Second, differences between children are likely to

widen on several measures and may disappear completely on other indicators as the children progress through school. Having introduced the ECS, we will describe it in somewhat greater detail in the next section.

The Early Childhood Study

Georgia is a unique and very important state in which to study the effects of universal prekindergarten as many other states are embarking on similar programs. The Early Childhood Study began in 2001 as an evaluation of the impacts of preschool, and the Pre-K Program in particular, on children's development. The three types of preschool were: Georgia's Pre-K Program, Head Start, and private preschool. The study was expected to last for at least three years, following the children from the beginning of their preschool year through the first grade.

A probability sample of four year-olds receiving instructional and supervisory services under the auspices of Head Start, the Georgia Pre-K Program, and private preschools was selected. For the study, 135 sites were chosen and 126 agreed to participate. Children were sampled after obtaining parental consent (75 percent or more consented in most sites), and data collected on 630 children (approximately 5 per class) throughout the first year.

Data was collected through parent surveys, teacher surveys, direct assessments of children by independent assessors, direct observations of classroom quality and teacher-child interactions, and teachers' ratings of children's social, communication, and pre-academic skills. The direct assessments produced standardized (norm referenced) scores for vocabulary, letter and word recognition, expressive language, and pre-math skills, in addition to scores on basic skills, such as naming numbers and colors. Teachers and parents were asked to rate other dimensions of the children's development, including social and emotional behavior and health. Response rates vary from 70 percent for the fall parent survey to 75 percent for teacher surveys to 86 percent for both spring and fall direct assessments.

Direct assessments and teacher ratings of the study participants were completed in the fall 2001, spring 2002, and fall 2002 to enable the study team to estimate developmental status at entry into preschool in 2001, upon leaving preschool in 2002, and at entry into kindergarten. Furthermore, analysis yielded estimates of gains during the school year, gains during the full year, and value added estimates controlling for factors such as family background, parenting, and children's demographic characteristics.

A technical appendix provides a detailed description of the study methods, including sample selection, data collection, and analysis methods used in this study. Because some data were missing, depending on the surveys or instruments that were used to collect the data, the sample sizes are reported for

each of the descriptive tables. In all cases, all available data were used. For the analysis of outcomes and the analysis of gains, when data were missing on the predictor variables in the models, those data were imputed using maximum likelihood techniques described in the appendix.

Report Organization

The report is organized into eleven chapters. In Chapter 2, differences in the characteristics of the children in the three types of preschool programs are described and analyzed. In Chapter 3, the differences in children's developmental status at the beginning of their prekindergarten year are presented and analyzed. Chapter 4 provides information on indicators of the quality of the preschool sites and classes attended by the children. Developmental outcomes for the children at the end of their preschool year and beginning of their kindergarten year are presented in Chapter 5, along with the gains at these two important junctures. Chapter 6 contains an analysis of the differences between preschool teachers' ratings of the skills and abilities of the children in their classes and how kindergarten teachers rate the same students. We analyze the developmental trajectories of the individual children in Chapter 7 to assist in understanding the developmental status of children entering kindergarten and the gains they have made on multiple dimensions of school readiness. In Chapter 8, we compare the performance of publicly-funded early childhood programs for disadvantaged children. In Chapter 9, we analyze the effects of program quality using three standard measures of the quality of early education programs. Chapter 10 presents measures of parent involvement with their children at home and in school and their opinions about their children's preschool. Finally, in Chapter 11, we focus on summer learning loss between the end of preschool and beginning of kindergarten and identify which children are most affected by it.

Chapter 2

Child and Family Characteristics of Children Enrolled in Georgia Pre-K, Head Start, and Private Preschool

A primary goal of the Early Childhood Study (ECS) is to examine the cognitive, language, social-emotional development, and health of young children, with a particular focus on the influence that preschool experiences have on children's growth. However, children's development is a complex process that is influenced by a number of factors including experiences in preschool, experiences in the home, and characteristics of individual children. Child characteristics that are associated with development include sex, age, race, and whether the child has special developmental needs. Characteristics of the family that play a vital role in the development of young children include parental levels of education, socio-economic status, parent-child interactions, and the family structure. Each of these family characteristics can directly influence children by providing resources and a home environment that either enhance or detract from their development.

Data from the 2000 United States Census suggest that for a number of key indicators measuring children's well-being, children in Georgia are more at-risk than children from most of the other states in the U.S. For example, 17.1 percent of children in Georgia who are under eighteen years of age live below the poverty line as compared to 16.6 percent of children nationally. The percentage of families headed by a single parent is slightly higher in Georgia (30 percent) than in the United States (28 percent). Children in Georgia are also more likely to be born to teenage parents than children in the United States. In our study sample, 12 percent of the children were born to teenage mothers. Taking into consideration a number of indicators of child well-being, children in Georgia ranked 41st out of 50, suggesting that the population in the Early Childhood Study experience greater home and family risks than children in most other states (Kids Count, 2003). With so many children at risk for experiencing developmental delays and subsequent academic and social-emotional difficulty in school, the accessibility and affordability of quality preschool programs is critical to intervene in this cycle.

Within a state like Georgia that offers an extensive prekindergarten program, a majority of four year-old children attend a formal preschool program. One of the largest programs for four year-olds is Head Start, a program that is available only to children from economically disadvantaged households. Because of the Head Start eligibility criteria and the fact that private preschools charge tuition, there are differences in the children who participate in Head Start and private preschools. However, the Georgia Pre-K Program is free for any four year-old child in the state regardless of family economic status, thus, it serves a diverse population of children who have a wide range of family and home characteristics. Therefore, some of the families whose children attend Georgia Pre-K have many

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similarities, in terms of characteristics that relate to child development, with the families who send their children to Head Start and to private preschool.

On average, children enrolled in Head Start were from homes and families with the greatest disadvantages, children enrolled in private preschools were from families with the fewest disadvantages, and children who attended Georgia Pre-K were from families with substantial variability regarding their economic resources, parent education, child interactions, and family structure. For example, almost two-thirds of the children in Head Start have not lived continuously with both parents since birth (63 percent), compared to 27 percent of Pre-K children and 20 percent of private preschoolers. While the differences in the average family characteristics across the three program types are notable, there is substantial overlap in the family characteristics of children who attended Georgia Pre-K with the family characteristics of children who attended Head Start and private preschools. Because of this overlap, many children in Georgia Pre-K have family characteristics that put them at risk of school failure, which makes them quite similar to children enrolled in Head Start. For example, there are Pre-K children who have not lived with both parents continuously since birth, who were born to teenage mothers, and who live in families where the household income is equivalent to that of Head Start children.

The remainder of Chapter 2 is divided into three sections. The first section reviews the literature on family characteristics thought to influence young children's development. The second section describes our procedures for measuring child and family characteristics among participants in the Early Childhood Study. The final section reviews child and family background characteristics for children enrolled in Georgia Pre-K, Head Start, and private preschools.

Family Characteristics and Children's Development

A number of family characteristics have been identified that have a negative influence on children's development. Over the course of a 20-year longitudinal study, Sameroff and colleagues (1987) presented the following ten social and family risk factors that negatively influence children's development: (1) maternal health problems, (2) high maternal anxiety, (3) maternal authoritarian child rearing attitudes, (4) poor mother-child interactions (5) mother with less than a high school education, (6) head of household with semi or unskilled occupation, (7) minority ethnic status, (8) father absent, (9) many stressful life events during last year, and (10) large family size. Burchinal et al. (2000) reviewed a number of studies on young children and found the following family risk factors that have a negative influence on children's development during the preschool years: poverty, low maternal education, low maternal IQ, minority ethnic status, large household size, single parent families, stressful life events, authoritarian child-rearing attitudes, and responsiveness and stimulation in the home environment.

Measuring Child and Family Characteristics

An important objective of the ECS study was to obtain family characteristics that were related to children's development, measurable through survey techniques, and did not offend or intrude upon the privacy of families. In spite of the practical limitations in selecting and obtaining family characteristics measures that were included in the ECS, we were able to collect substantial and salient information. Child and family characteristics were measured with two surveys of parents and one rating form completed by preschool teachers of children in the ECS.

The first survey was delivered to parents at the beginning of the preschool year via the child's teacher, and it measured family characteristics including mother's level of education, father's level of education, and parent-child interactions. The second parent survey was completed by telephone during spring of the preschool year, and parents who did not complete the telephone survey were mailed a written version during summer 2002. This survey measured various characteristics of the family structure and economic resources in the home. At the beginning of the preschool year, teachers were given a student rating form to complete on each child in our study. The rating form measured their perceptions of various characteristics of the children, including whether a child was or would be referred for language assistance services and the parent's participation in school events. Details about these surveys are included in Appendix B.

Characteristics of Children Enrolled in Georgia Pre-K, Head Start, and Private Preschools

The average age of participants upon their entry into preschool was 4.5 years, and there was no difference in the average ages of participants enrolled across the three preschool program types (Table 2.1). However, the majority of children enrolled in Head Start (57 percent) were African American, while the majority of children enrolled in private preschools (64 percent) were White. In Georgia Pre-K, the sample was split more evenly between White and non-White participants. All three programs had similar percentages of children in the category in which "other minorities" were grouped.

Another difference in characteristics of children who attended the three preschool program types was children's sex. In Georgia Pre-K, the percentage of males was equal to the percentage of females. However, in Head Start and private preschools, there were disproportionately more male students than female students. One interpretation of this discrepancy is that parents may be more likely to identify academic and behavior issues among boys than girls, which may lead parents to seek preschool programs that they believe can offer specialized services for the child's behavioral or academic needs.

Table 2.1
Characteristics of Children Participating in the Georgia Early Childhood Study by Program Type

Demographic Characteristic	Georgia Pre-K n=353	Head Start n=134	Private n=143	Overall n=630
Age at Preschool Entry [a]	4.5	4.5	4.5	4.5
Race				
% White [b]	49	31	64	49
% Black [b]	41	57	26	41
% Other [a]	10	13	10	11
Sex [a]				
% Male	50	57	59	53
% Female	50	43	41	47

Note: Percentages may not total to 100 due to rounding.
[a] The groups do not differ significantly from one another.
[b] All three groups differ significantly from one another.

Family Characteristics of Children Enrolled in Georgia Pre-K, Head Start, and Private Preschools

The levels of parental education and types of parent-child interactions that are associated with children's development differ significantly across the three program types (Table 2.2). The average education levels of mothers and fathers of children who attended private preschools were significantly higher than those of children enrolled in Georgia Pre-K and Head Start. Furthermore, mothers and fathers of children who attended Head Start had significantly lower levels of education than their counterparts in Georgia Pre-K. There was not a statistically significant difference in the average frequency that Georgia Pre-K parents and private preschool parents read to their children, but, on average, parents of children who attended Head Start read to their children significantly less often than parents of children who attended the other types of preschool programs.

Results also confirmed that there were children in Georgia Pre-K with family backgrounds similar to children in Head Start and private preschools. For example, the proportion of children who received Medicare, a means tested federal program, was significantly higher among Head Start children than children enrolled in Georgia Pre-K and private preschools. However, the proportion of children in Head Start who received PeachCare, a state-funded

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insurance program that subsidizes health care costs for low-income families not qualifying for Medicare, was nearly equal to the proportion of children in Georgia Pre-K who received these benefits. In addition, while the proportion of children whose mothers and fathers had less than a high school diploma was highest among children in Head Start, the actual number of children in the Georgia Pre-K sample who have a mother or father with less than a high school diploma is about equal to the number of children in the Head Start sample. There are also roughly equal numbers of children in the Georgia Pre-K sample and the private preschool sample who have a mother or father with a Bachelor's degree or more.

Table 2.2
Family Characteristics of Children Participating in the Georgia Early Childhood Study by Program Type (Fall 2001)

Family Characteristic	Georgia Pre-K n=294	Head Start n=102	Private n=118	Overall n=514
Mothers with Less than High School Degree (%) [c]	8.1	39.8	2.6	12.8
Mothers with Bachelor's Degree or More (%) [b]	28.9	5.4	49.1	29.1
Fathers with Less than High School Degree (%) [c]	11.7	34.1	5.4	14.3
Fathers with Bachelor's Degree or More (%) [c]	27.4	7.1	38.7	26.4
Born to Teenage Mothers (%) [c]	10.4	25.0	4.5	11.9
Read to Every Day at Home (%) [f]	29.3	18.8	34.5	28.5
Receiving Medicaid as Main Source of Health Insurance (%) [c]	17.3	57.3	9.6	23.4
Receiving PeachCare as Main Source of Health Insurance (%) [e]	11.9	11.5	3.5	9.8

[b] All three groups differ significantly from one another.
[c] Children enrolled in Head Start differ significantly from children enrolled in Georgia Pre-K and private preschool.
[e] Children enrolled in private preschool differ significantly from children enrolled in Georgia Pre-K.
[f] Children enrolled in Head Start differ significantly from children enrolled in private preschool.

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The family structure and economic status of children who attended the various program types are quite different (Table 2.3). For example, compared to children in both Georgia Pre-K and private preschools, children who attended Head Start were two to three times more likely to have not lived with both parents in the same household since birth, and about two times more likely to be living currently in a single parent household. Family economic status also varied significantly across program types in that children enrolled in Head Start were from families with fewer economic resources than children enrolled in Georgia Pre-K and Head Start. On the other hand, results also reflect the similarities in family structures and economic resources for subsets of children within the three program types. For example, while the proportion of children in Head Start who received Food Stamps during the past five years was significantly higher than children in Georgia Pre-K, there were about the same number of children within the two sub-samples whose families received Food Stamps.

Table 2.3
Family Characteristics of Children Participating in the Georgia Early Childhood Study by Program Type (Spring 2002)

Family Characteristic	Georgia Pre-K n=203	Head Start n=56	Private n=81	Overall n=340
Children who Have Not Lived with Both Parents Continuously since Birth (%) [c]	27.2	62.5	20.0	31.4
Children who Live in Household with fewer than 2 Adults (%) [c]	18.8	37.5	17.5	21.6
Families that Received Welfare during past 5 years (%) [c]	4.1	30.9	3.9	8.5
Families that Received Food Stamps during past 5 years (%) [c]	13.2	46.3	2.6	16.2
Average Household Income [b]	$40-$50K	$20-$30K	$60-$70K	$40-$50K

[b] All three groups differ significantly from one another.
[c] Children enrolled in Head Start differ significantly from children enrolled in Georgia Pre-K and private preschool.

Based on teachers' reports, parent participation was rated high across all three programs. The average rating overall was "good" (5 on a 7-point scale), although parent participation in Head Start was significantly lower than parent participation

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in both Georgia Pre-K and private preschools (Table 2.4). This significant difference in rates of parent participation could be a reflection of actual lower rates of parents' participation in Head Start or higher expectations of Head Start teachers. Parent participation is a mandated component of the Head Start program, and a number of activities are facilitated through parent involvement coordinators including: classroom volunteering, home visits twice a year, parent education classes, adult education classes for job training and literacy, and participation in Head Start decision-making bodies. While not mandated, parent participation is encouraged by Georgia Pre-K, and two standards have been routinely monitored: two parent teacher conferences per year and providing individualized information to parents on their child's progress.

Table 2.4
Family Characteristics of Children Participating in the Georgia Early Childhood Study by Program Type (Teacher Rating)

Family Characteristic	Georgia Pre-K n=334	Head Start n=121	Private n=126	Overall n=581
Parent Participation [c] (range 1-7)	5.34	4.79	5.65	5.29
% Referred for Language Services [c]	9.8	28.2	3.1	12.4

[c] Children enrolled in Head Start differ significantly from children enrolled in Georgia Pre-K and private preschool.

Four family risk characteristics were selected for use in the subsequent analyses of children's development: (1) mother's level of education, (2) degree of parent participation in school, (3) family receives means tested benefits, and (4) child has lived with both parents since birth. These risk characteristics were selected because they have related to children's development in prior research, represented family characteristics that are distinct from one another, and were measured using instruments that had high response rates. Child characteristics incorporated into subsequent analysis include the child's sex, race, age, and whether the child was referred for language assistance services. Many other family characteristics have been useful for descriptive comparisons of risks, as well as for estimating family characteristics data that were missing. (For more information about the procedures for estimating missing data, refer to Appendix C.)

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Table 2.5
Child and Family Characteristics Incorporated into Subsequent Analyses

Child Characteristics	Family Characteristics
Sex Age Race Referred for Language Assistance Services	Mother's Level of Education Parent Participation in School Family Received Means Tested Benefits Lived with Both Parents Since Birth

Cumulative Risk Index

In most analyses of children's development in the Early Childhood Study, the child and family characteristics presented above will be used as separate variables (see Table 2.5). However, in certain analyses, there are advantages in collapsing family risk factors into a single variable representing the overall family risk that a child experiences. A cumulative risk index includes the total number of family risk factors that a child experiences in order to examine the influence of those risks on children's development.

To create a cumulative index of family risk, the four family characteristics were recoded into separate variables with an established criterion that defined risk. Children were considered at risk if their mother had less than a high school degree, their parent participation in school was rated below average, their family received any means tested benefits including welfare, food stamps, Medicaid, or PeachCare, or they had not lived with both parents since birth. By summing the number of risk factors that each child experienced, a cumulative risk index ranging from 0 to 4 was created for each child. For missing data on any of these risk characteristics, a value between 0 and 1 was estimated corresponding to the probability that the child experienced this risk factor. Thus, the cumulative risk index for each child may contain estimated fractional values for the number of risks that the child experienced.

The average number of risks experienced by children within the overall sample was .893 (Table 2.6). On average, children in Head Start experienced the highest number of family risks (1.70), children in private preschool experienced the lowest number of family risks (.482), and children in Georgia Pre-K experienced a moderate number of family risks (.755). As noted previously, the Georgia Pre-K Program serves children from diverse family backgrounds, with some children experiencing family risks that are comparable to children in Head Start, and other children having family risks that are comparable to children in

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private preschools. For example, the percentage of children in Georgia Pre-K who experienced zero family risks (37 percent) was nearly equal to the percentage of children in private preschool who experienced zero family risks (43 percent).

Table 2.6
Cumulative Risk Index for Children Participating in the Georgia Early Childhood Study by Program Type

Cummulative Risk Index	Georgia Pre-K n=353	Head Start n=134	Private n=143	Overall n=630
Cumulative Risk Index (range 0-5)				
Mean [b]	.755	1.70	.482	.893
Standard deviation	.852	.965	.685	.946
% 0 risks	36.5%	4.5%	43.4%	31.3%
% less than 1 risk	19.9%	19.4%	27.2%	21.4%
% 1-2 risks	38.5%	53.0%	27.3%	39.0%
% more than 2 risks	5.1%	23.1%	2.1%	8.3%

[b] All three groups differ significantly from one another.

Conclusion

Characteristics of children and their families play a vital role in explaining the development of young children. Significant differences were found in the characteristics of children who attended Head Start, Georgia Pre-K, and private preschools. There also was substantial variability in the family characteristics of children who attended the three program types. Specifically, many children enrolled in Georgia Pre-K have family backgrounds that are comparable to children in both Head Start and private preschools. Subsequent analysis of the development of children will use the child and family characteristics reported on in this chapter to control for their effects on development in order to isolate the effects that may be attributed to children's preschool experiences.

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Chapter 3

Developmental Status of Children at the Beginning of Preschool

Young children develop at different rates and, therefore, enter preschool at different points on their developmental paths. These differences not only occur between children, but for an individual child, development can be uneven with some skills progressing faster than others. The purpose of this chapter is to describe some of the developmental differences in children at the time they begin Pre-K, Head Start, and private preschools. It is important to understand the extent to which children in these programs begin preschool at different points developmentally, but it is also important to know the extent to which these groups, or subsets of children, are similar. While our focus in this chapter is to describe the developmental status of these three groups of children as they enter preschool, these measures will also serve as baseline indicators to examine "value added" or gains in development of children during preschool and subsequent schooling.

Four year-olds in Georgia who attended preschool started with scores below the national norms on three out of four norm-referenced tests. In two of the dimensions assessed in the study, cognition/general knowledge and language skills, children enrolled in Pre-K and private preschools scored higher than Head Start children, on average. However, many children in each of the programs are similar in terms of their developmental status on these dimensions. For example, 50 percent of the Head Start children scored 15 points or more (at least one standard deviation) below 100, the norm for a standard vocabulary assessment (PPVT; Dunn & Dunn, 1997). While 26 percent of the children in Pre-K scored similarly, the number of Pre-K and Head Start participants scoring at 85 or below were nearly identical. For the other two dimensions assessed in this study, health/well-being and social-emotional development, the children were reasonably similar across the three program types. On average, the health of the children in all three groups was good and their behavior was rated slightly above average when they entered preschool.

The remainder of Chapter 3 is divided into five sections. The first section describes our procedures for measuring the developmental status of the participants in the Early Childhood Study. In each of the next four sections the developmental status of the children are described on each of the four dimensions of child development: (1) cognition and general knowledge; (2) language and communication; (3) social and emotional development; (4) health and physical well-being.

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Methods for Measuring Children's Development at Preschool Entry

An objective of the Early Childhood Study was to measure the developmental status of four year-olds participating in Georgia Pre-K, Head Start, and private preschool as comprehensively, accurately, and quickly as possible. To be as comprehensive as possible, we measured characteristics in four of the dimensions recommended by the National Education Goals Panel on School Readiness (Kagan, Moore, and Bradekamp, 1995). For accuracy, we utilized three of the best sources available to assess children's readiness: trained professionals who individually administered widely used developmental assessments with each child in the study, parents, and teachers (Table 3.1).

In order to reduce the impact of preschool on the children's developmental status, we began the process of sampling children from previously sampled classrooms, obtaining parental permission, and collecting the assessments in September 2001. For example, direct assessments were administered to the 630 children included in this report between the dates of September 10 and November 16, 2001. Over two-thirds of the children were tested between the dates of September 10 and October 10, 2001. Because these assessments were completed near the beginning of the year, they will serve as baseline measures for assessing gains on the same assessments administered at later points. They will also serve as baseline indicators for other measures of the children's developmental status and social outcomes at the end of preschool and beyond.

In addition to providing an overall developmental picture of children in the study, using these multiple data sources allowed us to examine the learning goals of both the Georgia Pre-K Program and Head Start. The Georgia Pre-K Program outlines developmental learning goals for language (receptive and expressive), reading, mathematics (sequencing, patterns and numbers), creativity (individual expression), and the child's physical, social and emotional development (positive self-concepts). Head Start goals place an emphasis on children's physical health and abilities, self-confidence and self-discipline, and family interaction, and in recent years have focused on academic skills related to school readiness.

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Table 3.1
Georgia Early Childhood Developmental Assessments (Fall 2001)

Developmental Area	Instrument	Method
Cognition & General Knowledge	Color Bears (Zill & Resnick, 1988)	Direct Assessment
	Woodcock Johnson Test of Achievement-III (Woodcock, McGrew & Mather, 2001; Applied Problems subtest)	Direct Assessment
	Draw-A-Person subtest (MSCD; McCarthy, 1978)	Direct Assessment
	Number Naming and Name Writing (Bryant, 2001)	Direct Assessment
	Academic (pre-math & pre-reading) skills	Teacher Survey
Language Development	Receptive language (vocabulary): Peabody Picture Vocabulary Test-III, Form A (Dunn & Dunn, 1997)	Direct Assessment
	Recognition of letters and words: Woodcock Johnson Test of Achievement – III (Woodcock, McGrew & Mather, 2001; Letter-Word Identification subtest)	Direct Assessment
	Expressive language: Oral and Written Language Scales (Carrow, 1995; Expressive subtest)	Direct Assessment
	Story and Print Concepts (Zill & Resnick, 1998)	Direct Assessment
	Conversation, Communication and Expressive Language	Teacher Survey
	Referral to Language Assistance Services	Teacher Survey
Social and Emotional Development	Classroom behaviors	Teacher Ratings
Health and Physical Well-being	Items adapted from Family and Child Experiences Survey (Zil and Resnick,1998) and National Early Childhood Longitudinal Study (1999)	Teacher Survey & Parent Survey

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Cognition and General Knowledge

Skills Tests and Standardized Assessments

Significant differences were found on all of the assessments of cognition and general knowledge between children enrolled in Georgia Pre-K, Head Start, and private preschools. (Table 3.2) For example, when presented with ten colors (yellow, red, orange, black, blue, green, white, purple, pink, and brown), children were awarded two points if they could identify the color without being prompted and one point if a prompt was needed. Overall, children could identify most colors and did well on this skills test (mean=17.5), but there were significant differences in the results of children in Georgia Pre-K (17.7), Head Start (16.1), and private preschool (18.5). Significant differences were also present when children were asked to identify the numbers one through ten that were randomly printed on a page. At the beginning of their preschool year, children in Georgia Pre-K identified an average of 5.0 numbers, children in Head Start identified an average of 3.4 numbers, and children in private preschool identified an average of 6.5 numbers. Similarly, the results for the other skills tests ("Counting Bears", "Story and Print Concepts", and "Draw a Person") indicated that children enrolled in Head Start began preschool with lower skill levels than children enrolled in Georgia Pre-K and private preschool.

Overall, children in Georgia scored below the national norm on an assessment of pre-math problem solving skills, including sequencing, counting, general arithmetic, and subtraction (Woodcock-Johnson III subtest, Applied Problems). However, private preschool children scored above the national norm (mean=101.3), while Georgia Pre-K children and Head Start children scored below (means of 96.9 and 90.8 respectively).

Table 3.2
Cognition and General Knowledge Assessments at the Beginning of Preschool (Fall 2001) by Program Type

Cognition and General Knowledge	Georgia Pre-K n=353	Head Start n=134	Private n=143	Overall n=630
Skills Assessments:				
Color Bears [c] (range: 0-20)	17.7	16.1	18.5	17.5
Counting Bears [c] (range: 1-5)	3.6	3.1	3.8	3.5

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Number Naming [b] (range: 0-10)	5.0	3.4	6.5	5.0
Draw a Person [c] (range: 0-3)	1.8	1.5	1.9	1.8
Standardized Assessment:				
WJ-III Applied Problems [b] (avg=100, sd=15)	96.9	90.8	101.3	96.6

[b] The means for all three groups differ significantly from one another.
[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

Teacher Ratings

In the fall 2001, teachers rated each child's math and language arts abilities upon entering preschool. These two items were combined into an overall academic scale ranging from 1 to 7. The sample mean fell between "average" and "good" (4.4), but children attending private preschool received higher ratings than children in Georgia Pre-K or Head Start (Table 3.3).

Table 3.3
Teachers' Overall Academic Ratings at the Beginning of Preschool (Fall 2001) by Program Type

Overall Academic Rating (range: 1-7)	Georgia Pre-K n=334	Head Start n=128	Private n=126	Overall n=588
Academic Skills [d]	4.4	4.2	4.9	4.4

[d] The means of the responses for teachers of children of private preschool children differ significantly from the means of the responses for teachers of children enrolled in Georgia Pre-K or Head Start.

Language Development

Skills Tests and Standardized Assessments

On average, Georgia children began their preschool year behind in the areas of receptive and expressive language (Table 3.4). Children in Georgia Pre-K began the year between Head Start children and private preschool children on both the Peabody Picture Vocabulary Test (PPVT; Dunn and Dunn, 1997) and the Oral and Written Language Scales Tests (OWLS; Carrow, 1995). Children in Georgia, on average, scored above the national norm for letter and word

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recognition (WJ-III Letter Word; Woodcock, McGrew, and Mather, 2001). Specifically, children attending private preschools averaged 108.0, while children in Georgia Pre-K scored 102.8. Head Start children scored below the national norm (100), with a mean score of 95.6 for the group.

Based on results from an assessment that measures children's familiarity with printed material and story comprehension, Georgia's four year-olds were just becoming familiar with printed material. Scores on the "Story and Print Concepts" ranged from 0 to 14, with an overall average of 3.6. Fewer than 10 children scored above 10, suggesting that this is a good assessment on which to track progress and gains. Head Start children scored considerably lower on this test (mean=2.9) than Georgia Pre-K (mean=3.8) and private preschool children (mean=3.8).

Table 3.4
Language Development at the Beginning of Preschool (Fall 2001) by Program Type

Language Development and Communication	Georgia Pre-K n=353	Head Start n=134	Private n=143	Overall n=630
Story and Print Concepts [c] (range:0-14)	3.8	2.9	3.8	3.6
PPVT [b] (avg=100,sd=15)	93.5	82.6	98.7	92.4
WJ-III Letter-Word [b] (avg=100,sd=15)	102.8	95.6	108.0	102.5
OWLS [b] (avg=100,sd=15)	91.2	83.3	94.8	90.4

[b] The means for all three groups differ significantly from one another.
[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

Teacher Ratings

Teachers rated children's communication skills above average on a measure that combines ratings of making conversation, communication skills, and positive expression (Table 3.5). For this indicator, children's ratings in all three program types are nearly identical, which contrasts with standardized assessments of the children's expressive and receptive language. Teachers, on average, rated communication skills higher than the children's academic abilities.

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In addition, teachers were asked to indicate it they had referred any child for special language assistance services. Head Start teachers were more likely to report that children in their classes were referred for language assistance services (28 percent) than children in Georgia Pre-K (10 percent) or private preschool (3 percent). Because the study excluded children who could not complete the initial assessments in English, many of these referrals were for speech or hearing problems, rather than problems related to limited English proficiency.

Table 3.5
Teachers' Language Development and Communication Ratings at the Beginning of Preschool (Fall 2001) by Program Type

Language Development and Communication (range: 1-7)	Georgia Pre-K n=334	Head Start n=128	Private n=126	Overall n=588
Communication Skills [a]	4.7	4.7	4.7	4.7
% Eligible for Language Assistance Service [c]	9.8	28.2	3.1	12.7

[a] The means of the responses for teachers of children for all three groups do not differ significantly from one another.
[c] The means of the responses for teachers for children enrolled in Head Start differ significantly from the means of the responses for teachers of children enrolled in Georgia Pre-K and private preschool.

Social and Emotional Development

Teacher Ratings

Classroom behavior is an important indicator of social-emotional development, an aspect that will be measured more completely as the children grow older. Overall, teachers rated the children, on average, as slightly below "good" on a measure that combines children's respect for authority, ethical behavior and refusal skills (Table 3.6). Children from all three programs were rated similarly on these three items.

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Table 3.6
Teachers' Social and Emotional Development Ratings at the Beginning of Preschool (Fall 2001) by Program Type

Social and Emotional Development (range: 1-7)	Georgia Pre-K n=334	Head Start n=128	Private n=126	Overall n=588
Classroom Behavior [a]	4.9	4.8	4.8	4.8

[a] The means of the responses for teachers of children for all three groups do not differ significantly from one another.

Health and Physical Well-being

Teacher Ratings

On average, teachers rated the health and well-being of the children between "good" and "very good" on a measure that combined ratings of the children's health, general appearance, and whether they seemed well-rested. Head Start, Georgia Pre-K, and private preschool children were rated similarly (Table 3.7). Teachers judged health of their students to be better than their classroom behavior, academic skills, and communication skills. This may indicate that teachers recognized fewer problems with health issues among Georgia's preschoolers than they perceived with regard to skills areas.

Table 3.7
Teachers' Health and Physical Well-Being Ratings at the Beginning of Preschool (Fall 2001) by Program Type

General Health (range: 1-7)	Georgia Pre-K n=334	Head Start n=128	Private n=126	Overall n=588
Health/Wellness [g]	5.5	5.3	5.5	5.5

[g] The means of the responses for teachers of children enrolled in Head Start differ significantly from the means of the responses for teachers of children enrolled in Pre-K.

Parent Survey

Most parents indicated that their children's health was either good (4) or excellent (5) in response to the question, "Overall, how would you rate your *child's* health in general?" Parents of children in Georgia Pre-K and parents of children in

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private preschool frequently rated their children's health as excellent, while parents of children in Head Start tended to rate them as good (Table 3.8).

Table 3.8
Parents' General Health Ratings at the Beginning of Preschool (Fall 2001) by Program Type

General Health (range: 1-5)	Georgia Pre-K n=293	Head Start n=102	Private n=118	Overall n=513
General Health Rating [c]	4.5	4.1	4.5	4.4

[c] The means of the responses for parents of children enrolled in Head Start differ significantly from the means of the responses for parents of children enrolled in Georgia Pre-K and private preschool.

Conclusion

Georgia's four year-olds who attended preschool scored below the national norms for measures of receptive language, expressive language, and problem solving skills. However, these preschoolers scored on average slightly above the national average for academic achievement related to letter and word recognition. Results on these standardized assessments vary significantly for children enrolled in the three preschool program types. Children entering Head Start programs in fall 2001 received the lowest scores on all four standardized assessments, where children enrolled in private preschools entered with the highest measures of skills. Preschool teachers made the greatest distinctions between the three groups in terms of their academic skills and rated these skills lower overall than communication, social-emotional skills, or general health and well-being.

While the major purposes of these assessments were to better understand the developmental status of children entering preschool in Georgia and provide baseline measures to be used in later analyses, the data present a detailed picture of the need for effective preschools in Georgia. The assessments, which provide national norms, clearly indicate that Georgia's four year-olds were behind in cognition and language skills. Without effective preschool experiences that focus on developing pre-reading and pre-math skills, these differences are not likely to be reduced.

In subsequent chapters, we follow the progress of children in the study. In Chapter 4, we look at the quality of the preschool programs. In Chapter 5, we look at gains the children made by the end of preschool and by the beginning of kindergarten. We should realize that it would be difficult to bring children in Georgia up to the national average in a single year, but increasing their

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readiness for school by the end of kindergarten may position these children to make more substantial gains in later years. We return to the basic observation drawn from these data: children in Georgia will need the most effective preschool experiences possible, these experiences will need to focus on language and pre-academic skills, and they will have to work in tandem with highly beneficial experiences in kindergarten and primary school to bring the state's average in line with national norms.

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Chapter 4

Classroom and Teacher Characteristics of Georgia Pre-K, Head Start, and Private Preschools

Children's experiences in preschool can positively impact their cognitive, language, and social-emotional development and, in later years, can affect their educational success and other social outcomes. Supportive interactions between teachers and children, abundant learning materials and furnishings, and a child-centered approach to educating young children have been found to enhance child development. Also, the quality of a child's preschool experiences may relate to characteristics of the teachers, such as their levels of education and years of experience, as well as factors such as class size.

Early childhood education research has identified two distinct types of quality within preschools, structural and process. Structural quality refers to the aspects of an early childhood education program that can be regulated by administrative agencies through the implementation of program policies and guidelines such as teacher qualifications (education, certification, experience) and child to teacher ratios. Process quality refers to the nature of the processes that shape children's experiences, including interactions with teachers and other children, activities in which they participate, resources and materials (for example, books and playground equipment), and instructional methods employed by the teacher.

Four year-olds in Georgia are exposed to a wide range of preschool experiences as indicated by the diversity of the 126 preschools in this study. Findings indicate that Georgia Pre-K teachers had significantly higher levels of education than Head Start or private preschool teachers. No differences were observed between Head Start teachers and private preschool teachers in structural aspects of quality such as their levels of education, certification type, and years of teaching experience.

The process quality exhibited within classrooms varied from poor to good. On average, there were few differences found in process quality between Georgia Pre-K and Head Start classes. However, a higher standard of quality was significantly more consistent in Georgia Pre-K than in private preschools or Head Start. The consistent nature of the quality observed in Georgia Pre-K classrooms may reflect the high standards and monitoring efforts of the state-run program. In addition, Head Start teachers were more likely to report using a child-centered teaching style as opposed to a style that blended child-centered and adult-directed approaches.

Across all measures of process quality, including ratings of the learning environment and teacher-child interactions, as well as overall quality, the private preschools, on average, exhibited lower quality than either Georgia Pre-K or

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Head Start. It is important to note that the instruments used to measure preschool process quality in this study were developed from the perspective that child-centered approaches to educating young children are preferred over teacher-directed approaches. For this reason, private preschool programs emphasizing academic skills and delivering instruction in traditional, teacher-directed ways received lower ratings in terms of process quality.

Methods for Measuring the Quality of the Classroom Environment

During early 2002, trained observers visited the 126 preschool sites participating in this study. During these visits, observers assessed numerous aspects of process quality within the classroom environment using three previously validated instruments that measure interactions, activities, and the learning environment: the Assessment Profile (Abbott-Shim & Sibley, 1998), the Early Childhood Environment Rating Scale – Revised (ECERS-R; Harms, Clifford & Cryer, 1998) and the Caregiver Interaction Scale (CIS; Arnett, 1989) (see Appendix B for more detail).

In addition to these structured observations, other structural aspects of the preschool program were recorded including the total number of children in the class, child to teacher ratio, the program type, and whether the program was located within a school facility. In response to a survey, teachers reported their level of education, years of teaching experience, type of teaching certification, and when they received their highest degree.

Structural Quality

All three programs averaged about ten children per adult in the classroom (Table 4.1), but Georgia Pre-K classes had slightly larger classes, averaging 3 more students per classroom than Head Start or private preschools. Georgia Pre-K teachers had, on average, significantly higher levels of education than teachers in each of the other program types. For example, 80 percent of Georgia Pre-K teachers held a bachelor's degree or an advanced degree, as compared to 13 percent of Head Start teachers and 25 percent of private preschool teachers. Georgia Pre-K classes were also significantly more likely to be located within a school than Head Start and private preschool classes.

Table 4.1
Teacher and Classroom Characteristics in Georgia Pre-K, Head Start, and Private Preschool Programs

Teacher and Classroom Characteristics	Georgia Pre-K (n=54)	Head Start (n=23)	Private (n=20)
Average Years Teaching Preschool-3rd Grade [a]	7.1	9.9	10.4
Teacher Certification Type in Early Childhood Education [a]	59.3%	65.2%	55.0%
Degree Type [h]			
Less than College	13%	70%	75%
Associate's	7%	17%	0%
Bachelor's	54%	13%	20%
Advanced	26%	0%	5%
Average Years since Highest Degree [d]	9.0	8.8	17.6
Teacher's Race [c]			
White	75%	28%	71%
Black	22%	69%	29%
Other	3%	3%	0%
Adult/Child Ratio [a]	1:9.6	1:9.9	1:11.0
Number of Children in Class [g]	18.0	15.0	15.4
% Programs Located in School [h]	30.4%	3.7%	3.3%

[a] The means for all three groups do not differ significantly from one another.
[c] The means for Head Start differ significantly from the means for Georgia Pre-K and private preschool.
[d] The means for private preschool differ significantly from the means for Georgia Pre-K and Head Start.
[g] The means for Head Start differ significantly from the means for Georgia Pre-K.
[h] The means for Georgia Pre-K differ significantly from the means for Head Start and private preschool.

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Process Quality

Overall Quality

Based on the two instruments that provide statistically reliable and valid measures of the overall quality of preschool programs, the Assessment Profile and the ECERS-R, no meaningful differences in the overall quality of Georgia Pre-K and Head Start classes were observed (Table 4.2). However, the overall quality of private preschools was significantly lower than quality of both Georgia Pre-K and Head Start. For example, the quality rating on the Assessment Profile that has possible scores ranging from 0-48 was about 10 points lower in private preschool programs than in Georgia Pre-K and Head Start programs. Scores on the ECERS-R range from 1-7, and the average rating of private preschools (3.5) was over 1 point lower than average quality ratings in Georgia Pre-K (4.7) and Head Start (4.5) programs.

While the average quality of private preschools was significantly lower than quality in Georgia Pre-K and Head Start, each of the three types of preschool programs comprised classrooms with a wide range of quality (Table 4.2). An ECERS-R score of 5 or more indicates that the quality of the preschool classroom is between "good" and "excellent". More than one-third of Georgia Pre-K classes and about one-fourth of Head Start classes achieved this standard, while one in 30 private preschool classrooms in the study received a mean ECERS-R rating of 5 or more. A score on the ECERS-R below 3 indicates that the preschool does not meet "minimal" standards of quality. Only one Georgia Pre-K classroom and two Head Start classrooms fell below this standard, as compared to over one-third of private preschool classrooms that received minimal quality ratings.

Within each program type, there were an equal proportion of classrooms that received ratings between minimal quality (3) and good quality (5). The quality was significantly more consistent across the Georgia Pre-K Program classrooms (indicated by the standard deviation of ECERS-R scores, Table 4.2) than across Head Start or private preschools.

On the Assessment Profile, the majority of Head Start classrooms (59 percent) scored in the top quartile of possible scores (37-48), as compared to 39 percent of Georgia Pre-K classes. Only one private preschool achieved scores within this upper range on the Assessment Profile. A substantial portion of the private preschools (43 percent) scored in the bottom half of possible scores on the Assessment Profile (0-23), compared to zero Georgia Pre-K classrooms and one Head Start classroom. Within each program type, there were a number of classrooms with quality ratings in the range of 24-36.

Table 4.2
Overall Quality of Preschools by Program Type

Overall Quality	Georgia Pre-K n=69	Head Start n=27	Private n=30	Overall n=126
Assessment Profile (range=0-48)				
Overall Score [d]	35.2	37.0	25.3	33.2
Standard deviation	5.07	6.19	5.83	7.07
Minimum	24	21	15	15
Maximum	46	48	37	48
% Classes with < 24	0%	3.7%	43.3%	11.1%
% Classes with 24-36	60.9%	37.0%	53.4%	54.0%
% Classes with > 36	39.1%	59.3%	3.3%	34.9%
ECERS-R (range=1-7)				
Mean [d]	4.7	4.5	3.5	4.3
Standard deviation	.668	.852	.975	.928
Minimum	2.97	1.74	1.34	1.34
Maximum	5.83	5.69	5.12	5.83
% Classes with Mean <3	1.4%	7.4%	36.7%	11.1%
% Classes with Mean 3 - 3.99	14.5%	14.8%	26.6%	17.5%
% Classes with Mean 4 - 4.99	49.3%	51.9%	33.4%	46.0%
% Classes with Mean 5 or more	34.8%	25.9%	3.3%	25.4%

[d] The ratings of private preschool differ significantly from the ratings for Georgia Pre-K and Head Start.

Sub-Scales of Overall Quality

Along with the measures of overall quality from the Assessment Profile and the ECERS-R, these instruments also provide quality measures of specific aspects of the preschool experience. The Assessment Profile is comprised of the following four sub-scales with possible scores on each that range from 0-12: Learning Environment, Scheduling, Interacting, and Individualizing (Table 4.3). The quality of the learning environment was significantly lower in private preschools than in both Georgia Pre-K and Head Start programs. There were no differences in scheduling across the preschool programs, but there were significant differences in the amount of individualized instruction occurring within each program type. In particular, private preschools received significantly lower scores on individualizing, while Head Start centers received significantly higher scores on individualizing. The quality of interactions within Georgia Pre-K centers was significantly higher than the interactions within private preschools.

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Quality sub-scales measured by the ECERS-R also reflect the significantly lower levels of quality within private preschool classrooms. Space and Furnishings, Language-Reasoning, and Activities were significantly lower in private preschools than in Georgia Pre-K and Head Start centers. As found in the Assessment Profile, the quality of classroom interactions was higher in Georgia Pre-K classes than in private preschools. Figure 4.1 presents average ratings of overall quality and the sub-scales of quality in Georgia Pre-K, Head Start, and private preschool programs.

Table 4.3
Sub-Scales of Preschool Quality by Program Type

Overall Quality	Georgia Pre-K n=69	Head Start n=27	Private n=30	Overall n=126
Assessment Profile				
Sub-scales of Quality (range=0-12)				
Learning Environment [d]	8.6	9.0	5.2	7.9
Scheduling [a]	9.3	9.8	8.4	9.2
Interacting [e]	11.1	10.4	9.3	10.5
Individualizing [b]	6.2	7.8	2.4	5.6
ECERS-R				
Sub-scales of Quality (range=1-7)				
Space and Furnishings [d]	4.6	4.6	3.7	4.4
Personal Care Routines [a]	4.5	4.7	4.0	4.5
Language-Reasoning [d]	4.9	4.4	3.3	4.4
Activities [d]	3.9	3.8	2.4	3.5
Interactions [e]	5.5	5.1	4.2	5.1

[a] The means for all three groups do not differ significantly from one another.
[b] The means for all three groups differ significantly from one another.
[d] The means for private preschool differ significantly from the means for Georgia Pre-K and Head Start.
[e] The means for private preschool differ significantly from the means for Georgia Pre-K.

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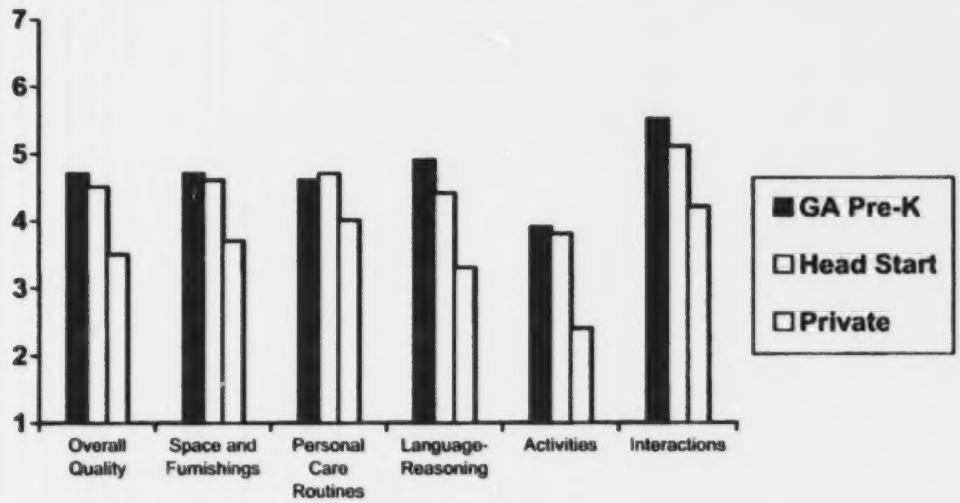
Figure 4.1
Average Ratings for ECERS-R Overall Quality and Sub-scales of Quality in Georgia Pre-K, Head Start, and Private Preschool Programs (range 1-7)



Quality of Interactions

The Caregiver Interaction Scale (CIS) measures one particular aspect of process quality: the personal interactions that children experience within the preschool classroom. Three aspects of the quality of interactions are measured reliably with the CIS, including Sensitivity, Harshness, and Detachment. By comparing the means across the three program types, it appears that Pre-K teachers were significantly more sensitive toward children than both Head Start teachers and private preschool teachers (Table 4.4). Georgia Pre-K teachers were also significantly less harsh than teachers in private preschools. There was no statistically significant difference in detachment across the program types. These results from the CIS are comparable with the results on the interactions sub-scales that were included in the Assessment Profile and the ECERS-R. Across each interactions sub-scale, Georgia Pre-K teachers consistently provided the highest quality interactions, while teachers in private preschools provided the lowest quality interactions.

Table 4.4
Mean Rating for Each Sub-Scale on the Caregiver Interaction Scale by Program Type

Overall Quality of Interactions	Georgia Pre-K n=69	Head Start n=27	Private n=30	Overall n=126
Caregiver Interaction Scale (range=1-4)				
Sensitivity [b]	3.1	2.8	2.6	2.9
Harshness [c]	1.4	1.6	1.7	1.5
Detachment [a]	1.3	1.3	1.5	1.3

[a] The means for all three groups do not differ significantly from one another.
[c] The means for private preschools children differ significantly from Georgia Pre-K.
[b] The means for Georgia Pre-K differ significantly from the means for Head Start and private preschool.

The interactions sub-scales from the Assessment Profile and the ECERS-R, along with the Sensitivity and Harshness sub-scales on the CIS, create a composite index that measures teacher interactions that will be used in subsequent analyses (Table 4.5). This composite index was formed by standardizing each sub-scale with a mean of zero and a standard deviation of one, and then computing the average score across the four sub-scales. The internal consistency computed for the four sub-scales is .90, suggesting that the composite interaction index achieved adequate levels of reliability. Results indicate that Georgia Pre-K classrooms had the highest quality interactions, and these interactions were significantly different from the quality of interactions within private preschools.

Quality of the Preschool Environment

One sub-scale from the Assessment Profile (Learning Environment) and two sub-scales from the ECERS-R (Space and Furnishings, and Activities) relate to the quality of the learning environment (Table 4.5). A composite index measuring the quality of the learning environment was formed by standardizing each sub-scale with a mean of zero and a standard deviation of one, and then computing the average rating across the three sub-scales. The internal consistency computed for the three sub-scales is .85, suggesting that the composite learning environment index achieved adequate levels of reliability. Results indicate that there was no difference in the average quality of the learning environment between Georgia Pre-K and Head Start; however, the quality of the learning environment that children experienced in private preschools was significantly lower than the quality in Georgia Pre-K and Head Start classes.

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Table 4.5

Composite Indices of Quality of Interactions and Quality of Learning Environment by Program Type

Composite Index of Quality	Georgia Pre-K n=69	Head Start n=27	Private n=30	Overall n=126
Interactions Index [c]				
Mean	.292	-.104	-.578	0.00
Standard Deviation	.729	1.07	1.22	1.00
Range	-2.7-1.2	-3.5-1.0	-2.8-1.1	-3.5-1.2
Learning Environment Index [d]				
Mean	.373	.337	-1.16	0.00
Standard Deviation	.677	.805	.904	1.00
Range	-1.3-1.8	-1.6-1.7	-3.0-0.1	-3.0-1.8

[c] The means for the ratings of private preschool differ significantly from the means for Georgia Pre-K and Head Start.

[d] The means for the ratings of private preschool differ significantly from the means for Georgia Pre-K.

Teaching Style

Another important characteristic of children's preschool experiences concerns teachers' approaches to educating young children. Using teachers' ratings of their beliefs about educating young children and their classroom practices, teachers were categorized along a continuum of teaching styles ranging from child-centered, middle of the road, and adult-directed (Marcon, 1999). Child-centered teachers allow children to select the materials and activities for a substantial portion of the day, while adult-directed teachers tend to initiate and direct children's learning activities. Teachers who were categorized as middle of the road did not fall at either end of this continuum, and their beliefs and practices included a blend of child-centered and adult-directed approaches. Some experts in early childhood education suggest that child-centered approaches are more aligned with the developmental needs of young children, and there is research that suggests that children with child-centered teachers fare better than children with adult-directed teachers or middle of the road teachers.

Georgia Pre-K teachers, Head Start teachers, and private preschool teachers were categorized into each of the three teaching styles (Table 4.6). Results suggest that within Georgia Pre-K and private preschools, teachers use a variety of teaching styles that may reflect the wide range of curriculum types available to teachers. Head Start teachers were almost equally divided between child-centered and middle of the road, and none of these teachers used adult-directed

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approaches. Child-centered approaches in Head Start program reflect an emphasis on social-emotional development and social competency that are primary learning goals of the Head Start program.

Table 4.6
Teaching Styles in Georgia Pre-K, Head Start, and Private Preschool Programs

Teaching Style	Georgia Pre-K (n=53)	Head Start (n=22)	Private (n=20)	Overall (n=95)
Child-centered [a]	28%	55%	20%	33%
Middle of the Road [a]	53%	46%	45%	50%
Adult-directed [f]	19%	0%	35%	18%

Note: Percentages may not total to 100 because of rounding.
[a] The three groups do not differ significantly from one another.
[f] Head Start differs significantly from private preschool.

Relationship between Structural Quality and Process Quality

Structural aspects of the preschool program such as the teacher's experience, level of education, certification type, the child to teacher ratio, and whether the classroom was located within a local school are regulated through policies and procedures in the program. But, it is the aspects of process quality that children experience that have a direct impact on children's cognitive, language, and social-emotional development. An important question for agencies that regulate structural aspects of quality is which structural aspects of the preschool influence the quality of care that children experience while in the classroom.

Table 4.7 presents a correlation table illustrating the relationship between structural quality and process quality in preschools participating in the Early Childhood Study. Structural aspects of quality included teacher's level of education, whether the highest degree the teacher received was related to early childhood education, years of teaching experience, the number of years since the teacher received his or her highest degree, the child to teacher ratio, the total number of children in the class, and whether the classroom was located within a school. Measures of process quality included the overall ECERS-R, the Sensitivity and Harshness sub-scales from the Caregiver Interaction Scale, the overall score on the Assessment Profile, the composite variable of teacher interactions that comprises four sub-scales of interactions, and a composite

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variable for the quality of the learning environment that comprises three sub-scales.

Table 4.7
Correlations between Structural Quality and Process Quality

Structural Quality	ECERS	CIS Sensitivity	CIS Harshness	AP Total	Interaction Factor	Environment Factor	Child-centered Teaching Style	Adult directed Teaching Style
Teacher's Education	.252*	.357*	-.057	.180	.220*	.320*	-.030	-.072
Years of Experience	.006	.040	-.032	.076	.053	-.070	.211*	.014
Certified in ECE	.105	.081	-.127	.044	.093	.019	.008	.099
Years Since Degree	-.318*	-.055	.297*	-.233*	-.190*	-.345*	-.035	.077
Child:Teacher Ratio	-.333*	-.236*	.129	-.243*	-.236*	-.277*	-.104	.071
Number of Children in Class	.153	.208*	-.098	.172	.181	.096	.027	-.086
Program Located in School	.239*	.242*	-.126	.209*	.257*	.259*	.002	-.088

The teacher characteristics that were most highly related to the various measures of process quality were teacher education level and the length of time since the teacher received the highest degree. Teachers who had higher levels of education taught in preschools that had higher quality learning environments, including interactions among children and teachers. Teachers who had been out of school longer taught in classrooms with lower overall quality, lower quality learning environments, and lower quality interactions. The quality of instruction that children experienced was also associated with the child to teacher ratio. Classes with a higher number of children per teacher were associated with lower ratings of process quality. Classrooms that were located within schools were also significantly related to higher process quality. However, since almost all of the classes in schools were Georgia Pre-K classes, it is unclear from this correlation table whether it is the school environment that has a positive influence on quality or whether the positive influence on quality is related to the Georgia Pre-K Program.

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Conclusions

In Georgia, children attended highly varied preschool programs, as indicated by the diversity of the schools and classes in this study. There were significant differences across the three program types for two important structural aspects of quality: 1) teachers' levels of education; and 2) whether the program was located within a school - with Georgia Pre-K having teachers with higher levels of education and classes more likely to be located in schools. Teachers who recently received their degrees tended to teach in higher quality preschool classes. Teachers who have been out school longer may need additional training to improve the quality of the program they deliver.

There was no difference between Georgia Pre-K and Head Start programs on measures of process quality for which other studies have established a direct influence on children's learning and development. Process quality within private preschool programs ranged from poor to good, with their average ratings of quality of the learning environment and interactions, as well as overall quality, significantly lower than the Pre-K and Head Start programs. This finding raises an interesting paradox concerning parents' choices regarding where they send their children to preschool. Within a universal prekindergarten system in which high quality education is provided free of charge for any four year-old child in Georgia, some parents choose to pay for their children to attend private preschools that, on average, provide instruction to children that is not considered appropriate for children's developmental needs.

There are a number of speculative reasons why parents may choose private schools for their children. First, parents may choose to send their children to private preschools because there may not be any slots available within the Georgia Pre-K Program. Especially within areas where the number of children eligible to attend Georgia Pre-K exceeds the number of slots available, parents may be forced to seek alternative preschool arrangements.

Alternatively, parents may prefer preschool experiences that differ from the child-centered approaches that are considered by early childhood education experts to be high quality. The measures of process quality used in this study consider academically oriented activities such as worksheets, rote counting, and whole group activities to be less appropriate for frequent use with children, and programs that use these approaches had lower ratings. However, many parents may prefer this approach in an academically oriented preschool environment.

A final reason for this choice may be that parents preferred schools that aligned with their values such as allowing their children to receive religious instruction or to associate with other children who are similar to them. For example, some of the private preschool programs in the Early Childhood Study were based within churches, and many parents preferred to enroll their children in programs that

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are comprised of children who have the same religious affiliations and that incorporate religious teaching into the preschool curriculum.

In Chapter 7, the impacts of the differences in process and structural quality on children's development through the beginning of kindergarten are analyzed and discussed.

Chapter 5

Developmental Outcomes at the End of Preschool and Beginning of Kindergarten

One important purpose of preschool is to prepare children for kindergarten and to instill the skills, behaviors, and dispositions that will contribute to success in school and beyond. The purpose of this chapter is to describe the developmental status of children after preschool, their progress during preschool, and some of the developmental differences between groups of children from three preschool programs when they exit their preschool program and when they enter their kindergarten school year. It is important to realize that where children are developmentally at the end of preschool depends in part where they started. In this chapter, their status on several important measures of development and their gains are presented; in Chapter 7, factors influencing their developmental status are addressed.

On each of the four standardized assessments used in this study, preschoolers showed gains on the national norms, equaling or surpassing the norms for problem solving and recognition of letters and words. Although some of the overall averages remain below the national norms for similar age children, Georgia's preschoolers exit preschool and begin kindergarten in a better position relative to the national norms than they began preschool. Children attending Georgia Pre-K realized statistically significant gains on three of the four tests, reaching or surpassing the national norms on three tests. While children in Head Start remained behind the other two groups and the national norms on all four assessments, these children posted significant gains and continued to gain during the summer when the gains for children in the other programs achieved a plateau. Across all programs, preschoolers made significant and substantial progress in basic skills such as counting and naming colors. However, only 45 percent of the children from Head Start could name all of the numbers from one to ten by the beginning of kindergarten.

This chapter describes the developmental outcomes that were measured at the end of preschool and the beginning of kindergarten, starting with a brief description of the data collection process (See Appendix B for details). First, overall gains are discussed. Second, results from the preschool spring data collection are described, followed by the beginning of the children's kindergarten year. Sections are divided by the subject areas referenced earlier: cognition and general knowledge, language development and communication, social and emotional development, and general health.

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Measuring Children's Developmental Status after Preschool

Trained staff assessed children in the study at the end of their preschool experience and beginning of kindergarten, teachers rated children in their classes at the same two points, and parents responded to surveys about their children's behavior. Of the 630 children who were assessed at the beginning of preschool, 543 (86 percent) children were tested at the end of preschool (Spring 2002), and 466 (76 percent) were tested at the beginning of kindergarten (Fall 2002). During the spring, the majority of the 543 preschool children tested from the original sample were assessed between the dates of April 11, 2002 and May 24, 2002 (two children were assessed after this date). For this assessment period, the battery of tests did not change from the one previously administered and again comprised skills tests and standardized assessments. Assessments took approximately 30 - 45 minutes to complete for most children, though the time for a few children ran closer to an hour.

In the fall, the assessment for expressive language was dropped and, in an effort to measure phonemic awareness, two subtests, Word Elision and Sound Matching, from the Comprehensive Test of Phonological Processing (CTOPP) were added. During the fall of the kindergarten year, the data collection period lasted from September 6 until November 1, 2003. This testing window was longer than the previous two data collection periods because of the additional time it took to locate the original sample in their kindergarten year, confirm their placement, and coordinate with the various school systems and schools in order to work with the children. Once administered, assessments took approximately 45 – 60 minutes to complete for most children.

Teacher rating forms were also distributed to teachers at the end of preschool and at the beginning of kindergarten. We received 446 spring ratings forms from preschool teachers and 398 fall rating forms from kindergarten teachers. The overall language arts item from the fall was dropped during the spring, but specific language arts items (writing, reading, listening speaking) based on learning objectives for Georgia Pre-K were added. When considered in its entirety, the five subsets (academics, behavior, communication, wellness, and kindergarten readiness) remained.

Parents were surveyed about their children's behaviors, health and physical well-being along with general demographics. In the spring 2002, 340 parents responded to the survey and in the fall 2002, 276 parents responded. These responses were aggregated and presented in this chapter, but because of the response rate were not analyzed further.

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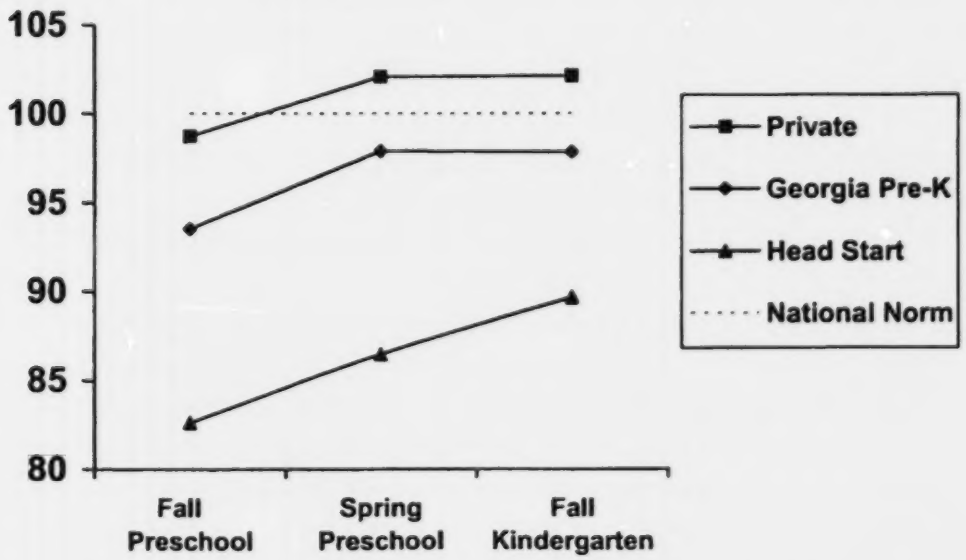
Overall Gains on Standardized Assessments

Preschoolers in Georgia ended their preschool year and began their kindergarten year with scores that were equal to or higher than national norms on two out of four standardized assessments. Overall the children progressed closer to the national norms or exceeded them on all four standardized assessments.

Children from Head Start made sharp gains in receptive language skills (measured by the Peabody Picture Vocabulary Test) between the first (Fall 2001) and third (Fall 2002) data collection periods (Figure 5.1). Georgia Pre-K and private preschool children showed significant increases in their standardized scores between the first and second (Spring 2002) data collection period, but these gains leveled between the second and third periods. Finally, private preschool children were slightly above Georgia Pre-K children, and Head Start children behind both groups when they entered kindergarten (Figure 5.1).

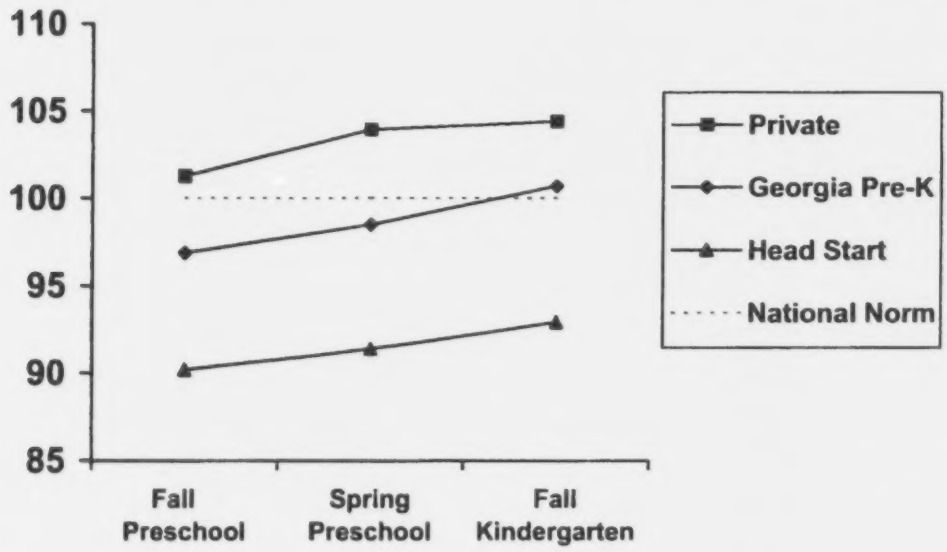
Overall, children in Georgia gained 4.1 points on the PPVT measure of receptive vocabulary from fall to spring, and 4.7 points from fall to fall. Examining the three program types reveals larger gains for Georgia Pre-K children from fall to spring (4.4), but higher gains for Head Start children from fall to fall (7.0); the latter gains are substantially higher during the summer. The overall gains and the gains for each subgroup were significant for both the fall and spring comparisons.

Figure 5.1
Development on the PPVT Measure of Receptive Vocabulary for Children in Private Preschools, Georgia Pre-K and Head Start



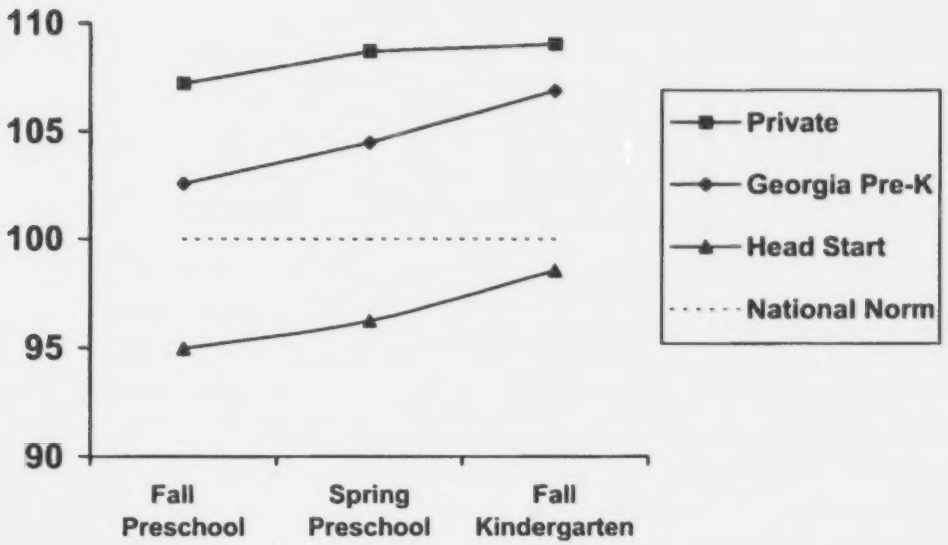
For pre-math, problem solving skills (WJ-III, Applied Problems), preschoolers registered gains, sufficient that by the spring, on average, both Georgia Pre-K children and private preschoolers were on par with or above the national norms (Figure 5.2). The rate of gain for private preschool children declined during the summer, but continued to rise for Georgia Pre-K and Head Start children. From fall 2001 to fall 2002, Georgia Pre-K children posted the highest gains (3.8 percentage points on standardized scores) followed by private preschool children (3.1) and children in Head Start (2.7) (Table 5.1).

Figure 5.2
Development on the WJ-III Applied Problems for Children in Private Preschools, Georgia Pre-K and Head Start



On a standardized assessment measuring recognition of words and letters, for which data were collected at all three periods, Georgia Pre-K and private preschoolers were well above the national norm (Figure 5.3). Gains made by children in Pre-K were the most substantial of the three groups for letter and word recognition (WJ-III, Letter-Word). By the start of kindergarten, Pre-K children were almost on par with private preschoolers. Head Start children showed significant gains by the beginning of kindergarten as well; however, their average score was well below the other groups. For letter and word recognition, gains were realized for all three groups, and the overall average indicates that Georgia children are ahead of the national norms in this area.

Figure 5.3
Development on the WJ-III Letter and Word Recognition for Children in Private Preschools, Georgia Pre-K and Head Start



Despite the significant differences that were found among the three groups in terms of the children's developmental status, it is important to note that overlaps exist. For example, 31 percent of the Head Start children were 15 points or more below (one standard deviation) 100, the norm for a standard vocabulary assessment (PPVT) in the spring. However, 18 percent of children in Georgia Pre-K and 11 percent of children in private preschool scored similarly. Furthermore, 14 percent of private preschool children scored 15 points or move above (one standard deviation) 100, compared to 8 percent of Georgia Pre-K children and 1 percent of Head Start children. These numbers were an improvement upon the fall 2001 scores and continued to improve in the kindergarten assessments.

Finally, for expressive language abilities (OWLS), all three groups exited their preschool program below their national counterparts (though children in private preschool were only slightly below) (Table 5.1). Though all three groups posted gains for the year, the lower average scores reveal that Georgia children still lag behind in their expressive language skills.

Table 5.1
Overall Gains for Standardized Assessments (Fall Preschool, Spring Preschool, Fall Kindergarten)

Standardized Assessment	Fall 2001 n=630	Spring 2002 n=543	Fall 2002 n=466	Change Fall 2001 to Spring 2002	Change Fall 2001 to Fall 2002
PPVT (Mean=100, sd=15)					
Georgia Pre-K	93.5	97.8	97.9	**+4.38**	**+4.32**
Head Start	82.6	89.7	86.4	**+3.80**	**+7.04**
Private	98.7	102.1	102.1	**+3.36**	**+3.42**
Overall	92.4	97.1	96.5	**+4.11**	**+4.66**
WJ-III Letter Word (Mean=100, sd=15)					
Georgia Pre-K	102.6	104.5	106.8	**+1.91**	**+4.29**
Head Start	95.0	96.2	98.5	+1.27	**+3.58**
Private	107.2	108.7	109.0	+1.49	+1.82
Overall	102.0	103.8	105.6	**+1.75**	**+3.61**
WJ-III Applied Problems (Mean=100, sd=15)					
Georgia Pre-K	96.9	98.5	100.7	+1.61	**+3.82**
Head Start	90.2	91.4	92.9	+1.21	**+2.73**
Private	101.3	103.9	104.4	+2.66	**+3.13**
Overall	96.5	98.3	99.9	**+1.81**	**+3.41**
OWLS (Mean=100, sd=15)					
Georgia Pre-K	91.2	94.9	--	**+3.66**	--
Head Start	83.3	85.8	--	**+2.50**	--
Private	94.8	99.6	--	**+4.82**	--
Overall	90.4	94.1	--	**+3.74**	--

[1] Gains in bold indicate a statistically significant difference between the fall and either spring 2002 or fall 2002 tests.
[2] OWLS was not administered Fall 2002. Two subtests from the Comprehensive Test of Phonological Processing (CTOPP) were used to test the children's phonemic awareness.

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Overall Gains in Skills Tests

More children in each program type obtained a perfect score on the skills tests measuring color recognition (Color Bears), counting (Counting Bears), and ability to correctly recognize written numbers (Number Naming) for each testing period (Table 5.2). For example, 21 percent of children in Georgia Pre-K could correctly name the numbers 1-10 when they began preschool, but by beginning of kindergarten, 72 percent of Georgia Pre-K children had mastered this skill. Gains were also noted for Head Start and private preschool children (36 percent and 56 percent respectively). Gains for all of the skills assessments were significant. Overall, the percentage of children who displayed a mastery of these skills rose for each testing period, though differences between the three groups remained.

Table 5.2
Overall Gains For Skills Tests (Fall Preschool, Spring Preschool, Fall Kindergarten)

Skills Assessment	Perfect Score Fall 2001 (%) n=630	Perfect Score Spring 2002 (%) n=543	Perfect Score Fall 2002 (%) n=466	Change Fall 2001 to Spring 2002 (%)	Change Fall 2001 to Fall 2002 %)
Color Bears (range=0-20)					
Georgia Pre-K	58	75	85	**+17**	**+27**
Head Start	41	64	81	**+23**	**+40**
Private	68	82	91	**+14**	**+23**
Overall	56	74	85	**+18**	**+29**
Counting Bears (range=1-5)					
Georgia Pre-K	43	64	74	**+21**	**+31**
Head Start	24	54	62	**+30**	**+38**
Private	44	70	78	**+26**	**+34**
Overall	39	63	73	**+24**	**+34**
Number Naming (range=0-10)					
Georgia Pre-K	21	47	72	**+26**	**+51**
Head Start	9	28	45	**+19**	**+36**
Private	32	68	88	**+36**	**+56**
Overall	21	48	70	**+27**	**+49**

[1] Gains in bold indicate a statistically significant difference between the fall and spring tests.

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Spring 2002: Cognitive and General Knowledge

Skills Test and Standardized Assessment

For the cognition and general knowledge skills tests and standardized assessments at the end of the children's preschool year, scores on the assessments and tests were higher than at the beginning of preschool; however, significant differences between the three groups remained. For example, children in private preschool were able to name an average of 9 numbers, compared to 8 numbers for Georgia Pre-K children and 5 numbers for Head Start children.

Scores on children's pre-math, problem solving skills were similar. The standardized mean on the Applied Problems sub-test of the Woodcock-Johnson for private preschool children (104) was higher than the means for Georgia Pre-K children (98) and Head Start children (91). The mean for children in private preschool was higher than the national average, whereas the means for the other two groups were still below.

On average, children in each of the three program types made gains on the standardized assessment (WJ-III, Applied Problems), although the differences in the gains between the three groups were not significant (Table 5.3). In addition, the gains of all three groups were statistically equal, averaging 1 point on the standardized scale. Despite the gains posted by the three groups, it is important to note that 31 percent of Head Start children were 15 points or more below (one standard deviation) the norm for a general mathematic assessment (compared to 16 percent of Georgia Pre-K children and 11 percent of private preschool children). Furthermore, 13 percent of private preschool children were 15 points or more above the general mathematic assessment norm (compared to 7 percent of Georgia Pre-K children and 4 percent of Head Start children).

Table 5.3
Results and Gains of Direct Assessments of Cognitive and General Knowledge at the End of Preschool (Spring 2002) by Program Type[1]

Cognitive and General Knowledge	Georgia Pre-K n=313	Head Start n=108	Private n=122	Overall n=543
Skills Tests:				
Color Bears [c] (range: 0-20)	19.3	18.4	19.5	19.2
Counting Bears [c] (range: 1-5)	4.2	3.9	4.4	4.2
Number Naming [b] (range=0-10)	7.5	5.4	8.8	7.4
Draw a Person [c] (range 0-3)	2.4	2.0	2.5	2.4
Standardized Assessment:				
WJ-III Applied Problems [b] (avg=100, sd=15)	98.5	91.4	103.9	98.3
Average Gain per Child [a] (Fall 2001 to Spring 2002)	*.8*	*1.3*	*1.3*	***1.0***

[1] Gains in bold indicate a statistically significant difference between the fall and spring tests.
[a] The average gains for all three groups do not differ significantly from one another.
[b] The means for all three groups differ significantly from one another.
[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

Teacher Ratings

For the spring 2002 rating form, teachers again rated each child's math and language arts abilities as they exited preschool. These two items were combined into an overall academic scale. The average for each group is slightly higher than the fall. The mean ratings for private preschool children differ significantly from the Georgia Pre-K and Head Start children.

In the spring, teachers rated each child's kindergarten readiness. The ratings indicated that, on average, their respective teachers felt the children were ready for kindergarten. Private preschool children were rated slightly more ready for

[1] The overall gains reported in Table 5.1 reflect the difference in means for the sample between fall and spring. The average gains per child reported in Table 5.3 reflect the average difference for each child between the fall and spring testing.

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kindergarten than Head Start children and significantly more ready than Georgia Pre-K children. In Chapter 6, we analyze these scores carefully to assess the extent of any systematic biases in teachers' ratings.

Table 5.4
Results and Gains of Teacher Ratings of Cognition and General Knowledge at the End of Preschool (Spring 2002) by Program Type

Cognitive and General Knowledge (range:1-7)	Georgia Pre-K n=254	Head Start n=97	Private n=95	Overall n=446
Academic Skills [d]	4.6	4.6	5.1	4.7
Kindergarten Readiness [e]	5.2	5.3	5.6	5.3

[d] The means for the ratings of private preschool children differ significantly from the means of the children enrolled in Georgia Pre-K or Head Start.
[e] The means for the ratings of private preschool children differ significantly from the means of the children enrolled in Georgia Pre-K.

Parent Surveys

For the spring parent survey, we asked parents whether their child could identify the colors red, yellow, blue, green, orange, and purple by name and how high their child could count. Table 5.5 indicates that most parents reported that their child knew most of these colors. Parents reported different answers to how high their child could count. Twenty-seven percent reported that their child could count between 10-25, 28 percent between 26-50, and 34 percent between 51-100. Overall significant differences were found between the three groups.

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Table 5.5
Results of Parent Surveys of Cognition and General Knowledge at the End of Preschool (Spring 2002) by Program Type

Cognitive and General Knowledge (range: 1-7)	Georgia Pre-K n=203	Head Start n=56	Private n=81	Overall n=340
Color Identification [a] (1=none of them, 2=most of them, 3=some of them, 4=all of them)	3.9	3.9	4.0	3.9
Counting [d]				
% 1 to 9	1	5	3	2
% 10 to 25	29	41	13	27
% 26 to 50	32	14	30	28
% 51 to 100	33	38	39	35
% 101 or more	7	2	16	8

[a] The means for all three groups do not differ significantly from one another.
[d] The means for the ratings of private preschool children differ significantly from the means of the children enrolled in Georgia Pre-K or Head Start.

Spring 2002: Language Development and Communication

Skills Test and Standardized Assessments

During their preschool year, Georgia four year-olds moved even higher above the national norms in their ability to recognize letters and words (Table 5.6). The children in Georgia Pre-K gained significantly on this assessment (WJ-III, Letter Word). Although each group posted gains on receptive and expressive language (Peabody Picture Vocabulary Test, Oral and Written Language Scales Tests), many children exit preschool behind the national norms. Children in Head Start scored below children in Georgia Pre-K and private preschool on both the receptive and expressive language assessments.

All three groups posted gains in knowledge of printed material and story comprehension (Table 5.6). The overall average gain was 1.2 points (out of a possible total of 14). However, private preschool children gained significantly more on this subtest than Head Start children, but not more than Georgia Pre-K children. Again, considering that only 20 children scored 10 or above (up from 7 in the fall) suggests that this is a good test on which to track progress.

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Table 5.6
Results of Direct Assessments of Language Development and Communication at the End of Preschool (Spring 2002) by Program Type

Language Development and Communication	Georgia Pre-K n=313	Head Start n=108	Private n=122	Overall n=543
Story and Print Concepts [c] (range: 0-14)	5.1	3.5	5.7	4.9
Average Gain per Child [f] *(Fall 2001 to Spring 2002)*	***1.2***	***.6***	***1.7***	***1.2***
PPVT [b] (avg=100,sd=15)	97.9	86.4	102.1	96.5
Average Gain per Child [a] *(Fall 2001 to Spring 2002)*	***3.1***	***3.0***	***2.6***	***3.0***
WJ-III Letter-Word [b] (avg=100,sd=15)	104.5	96.2	108.7	103.8
Average Gain per Child [a] *(Fall 2001 to Spring 2002)*	***1.4***	*1.8*	*-.6*	***1.0***
OWLS [b] (avg=100,sd=15)	94.9	85.8	99.6	94.1
Average Gain per Child [a] *(Fall 2001 to Spring 2002)*	***3.2***	***2.0***	***4.2***	***3.2***

[f] Gains in bold indicate a statistically significant difference between the fall and the spring tests.
[a] The average gains for all three groups do not differ significantly from one another.
[b] The means for all three groups differ significantly from one another
[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.
[f] The average gains for children enrolled in Head Start differ significantly from the means of the children enrolled in private preschool.

Teacher Ratings

Teachers' overall ratings on language development and communication skills, a composite item that included perceptions of the child's ability regarding making conversation, communication skills, and positive expression, was 5.0 (Table 5.7). This spring assessment was higher than the composite rating from the fall (4.7). Teachers for each program type rated the children enrolled in their programs higher on this skill. Moreover, the average ratings for the three groups did not differ statistically from each other.

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Table 5.7
Results of Teacher Ratings of Language Development and Communication at the End of Preschool (Spring 2002) by Program Type

Language Development and Communication (range: 1-7)	Georgia Pre-K n=254	Head Start n=97	Private n=95	Overall n=446
Overall Communication Skills [a]	4.9	5.1	5.2	5.0

[a] The means for all three groups do not differ significantly from one another.

Spring 2002: Social and Emotional Development

Teacher Ratings

Teachers gave their preschoolers an average behavior rating of 5 using items that asked about respect for authority, ethical behavior, and refusal skills (Table 5.8). Teachers from the three program types rated their children similarly on these items. The differences between the three groups were not statistically significant.

Table 5.8
Results of Teacher Ratings of Social and Emotional Development at the End of Preschool (Spring 2002) by Program Type

Social and Emotional Development (range: 1-7)	Georgia Pre-K n=254	Head Start n=97	Private n=95	Overall n=446
Behavior [a]	4.9	5.1	5.0	5.0

[a] The means for all three groups do not differ significantly from one another.

Parent Survey

We asked parents to rate their children on seven behavior items (Table 5.9). Three of these indicated positive or good behaviors (makes friends easily, shows imagination, and comforts and helps others), while four indicated less desirable or poor behavior (has temper tantrums, is unhappy sad or depressed, is nervous high-strung or tense, and is disobedient at home). Most parents responded that their child was more likely to exhibit good behavior and less likely to exhibit poor behavior. For six of the seven items, significant differences were not found between the three groups. However, parents of children in private preschool

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were more likely to say it was "always true" that their child shows imagination than parents of children in private preschool.

Table 5.9
Results of Parent Survey of Behavior at the End of Preschool (Spring 2002) by Program Type

Social and Emotional Development	Georgia Pre-K n=203	Head Start n=56	Private n=81	Overall n=340
Good Behavior Items: (1=always true, 2=often true, 3=sometimes true, 4=never true)				
Make Friends Easily[a]	1.4	1.3	1.3	1.4
Shows Imagination[f]	1.4	1.6	1.3	1.4
Comforts or Helps Others[a]	1.7	1.5	1.7	1.6
Poor Behavior Items: (1=never true, 2=sometimes true, 3=often true, 4=always true)				
Has temper tantrums[a]	1.9	1.8	1.8	1.8
Is unhappy, sad or depressed[a]	1.5	1.5	1.4	1.5
Is nervous, high strung or tense[a]	1.5	1.5	1.5	1.5
Is disobedient at home[a]	1.9	1.9	1.9	1.9

[a] The means for all three groups do not differ significantly from one another.
[f] The means for the parent responses of children in private preschool differ significantly from the means of the parents of children enrolled in Head Start.

Spring 2002: General Health

Teacher Ratings

Teachers rated children on health and physical well-being with three items referring to the child's general health, overall appearance, and the extent to which the child seems well-rested. Compared to the other items, teachers were more likely to rate children higher on these items. The overall mean was 5.6, and significant differences were not found between the three groups (Table 5.10).

We also asked teachers how many days the children in the study were absent. Though absences can be related to many factors, we felt that this was important in gauging the amount of instruction the child had missed and possibly related to

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the child's general health. Overall, children were absent an average of 10 days throughout the school year. However, children in Georgia Pre-K were less likely to be absent compared to children in Head Start (Table 5.10)

Table 5.10
Health and Physical Well-being Ratings at the End of Preschool (Spring 2002) by Program Type

General Health (range: 1-7)	Georgia Pre-K n=254	Head Start n=97	Private n=95	Overall n=446
Health/Wellness [a]	5.5	5.6	5.7	5.6
Avg. Number of days absent [g]	8.00	13.00	11.00	10.00

[a] The means for all three groups do not differ significantly from one another.
[g] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Pre-K.

Parent Survey

Similar to the fall parent survey, parents were asked about their child's general health (excellent, very good, good, fair, and poor). Overall results indicate that parents rated their children's health between very good and excellent (Table 5.11). Parents of Head Start children were less likely, though, to rate their children's health as excellent compared with parents of private preschool children.

Table 5.11
Results of Parent Survey of General Health at the End of Preschool (Spring 2002) by Program Type

General Health (range: 1-7)	Georgia Pre-K n=203	Head Start n=56	Private n=81	Overall n=340
General Health Rating [c]	4.6	4.3	4.7	4.6

[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

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Fall 2002: Cognitive and General Knowledge

Skill Tests and Standardized Assessments

Children knew more colors, numbers and could count higher as they began kindergarten (Table 5.12). The overall color naming average was 19.7 (out of 20), and children from all three groups scored on average above 19. For the skills tests measuring a child's ability to identify numbers from one to ten, children from all three groups scored high. Head Start children were less likely to score as high as children from Georgia Pre-K and private preschools; however, their scores had improved. Children from Georgia Pre-K and private preschool could identify an average of 9.1 and 9.5 of the numbers respectively, while children in Head Start knew an average of 7.6 of their numbers. Differences between the Head Start children and the other two groups were significant.

Children in Georgia Pre-K and private preschool scored above the national average on the general arithmetic assessment (WJ-III, Applied Problems). Head Start children fell below the national norms, but the gain from fall 2001 to fall 2002 was significant. Overall, the gains for all three groups were significant but the differences in the gains among the same groups were not (Table 5.12).

Table 5.12
Results of Direct Assessments of Cognitive and General Knowledge at the Beginning of Kindergarten (Fall 2002) by Program Type

Cognitive and General Knowledge	Georgia Pre-K n=275	Head Start n=95	Private n=96	Overall n=466
Skills Tests:				
Color Bears [a] (range: 0-20)	19.7	19.4	19.7	19.7
Counting Bears [c] (range: 1-5)	4.5	4.2	4.5	4.4
Number Naming [c] (range=0-10)	9.1	7.6	9.5	8.9
Standardized Assessment:				
WJ-III Applied Problems [c] (avg=100, sd=15)	100.7	92.9	104.4	99.9
Average Gain per Child [a] *(Fall 2001 to Fall 2002)*	***3.0***	***4.1***	***2.0***	***3.0***

[1] Gains in bold indicate a statistically significant difference between the fall preschool year and fall kindergarten year tests.
[a] The means for all three groups do not differ significantly from one another.
[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

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Teacher Ratings

The children's kindergarten teachers were less likely to rate the children as "ready for kindergarten" than the children's preschool teachers, especially for Head Start children (Table 5.13). On a scale ranging from 1 to 7, an average rating of 4.2 for Head Start children on this item is significantly different than the averages for Georgia Pre-K children (5.3) and private preschool children (5.6). The differences between the preschool and kindergarten teachers' ratings are analyzed and discussed in Chapter 6.

Table 5.13
Results of Teacher Ratings of Cognition and General Knowledge at the Beginning of Kindergarten (Fall 2002) by Program Type

Cognitive and General Knowledge (range: 1-7)	Georgia Pre-K n=234	Head Start n=79	Private n=85	Overall n=398
Academic Skills [b]	4.8	3.9	5.3	4.7
Kindergarten Readiness [c]	5.3	4.2	5.6	5.1

[b] The means for all three groups differ significantly from one another.
[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

Fall 2002: Language Development and Communication

Skill Tests and Standardized Assessments

Georgia's preschoolers' language and communication skills were developing rapidly during the year prior to kindergarten. On two subtests that are expected to predict reading skills (CTOPP, Elision and Sound Matching), Georgia's kindergarteners began the year slightly behind national norms. The results of the story and print concepts assessment indicated that the children are much more familiar with print materials and better at comprehending stories read to them. Children in Head Start gained more vocabulary than children in the other two groups, but on this assessment and all of the other direct assessments of language and communication skills, the children from Head Start remained behind the children from Georgia Pre-K and private preschool (Table 5.14).

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Table 5.14
Results of Direct Assessments of Language Development and Communication at the Beginning of Kindergarten (Fall 2002) by Program Type

Language Development and Communication	Georgia Pre-K n=275	Head Start n=95	Private n=96	Overall n=466
Story and Print Concepts [b] (range:0-14)	7.1	5.9	8.0	7.1
Average Gain per Child [a] *(Fall 2001 to Fall 2002)*	***3.2***	***3.0***	***3.8***	***3.0***
PPVT [b] (avg=100,sd=15)	97.8	89.7	102.1	97.1
Average Gain per Child [c] *(Fall 2001 to Fall 2002)*	***3.2***	***7.5***	***1.9***	***3.8***
WJ-III Letter-Word [c] (avg=100,sd=15)	106.8	98.5	109	105.6
Average Gain per Child [a] *(Fall 2001 to Fall 2002)*	***3.1***	***3.8***	*1.7*	***3.0***
CTOPP-Elision [c] (avg=10,sd=3)	9.0	7.8	9.4	8.8
CTOPP-Sound Matching [c] (avg=10, sd=3)	9.4	8.1	9.5	9.2

[1] Gains in bold indicate a statistically significant difference between the fall preschool year and fall kindergarten year tests.
[a] The means for all three groups do not differ significantly from one another.
[b] The means for all three groups differ significantly from one another.
[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

Teacher Ratings

On average, kindergarten teachers rated the children's communication skills as good (Table 5.15). In contrast to the ratings by preschool teachers, however, kindergarten teachers rated Head Start children's communication skills as "average"; this overall rating fell below the mean ratings received by children previously enrolled in Georgia Pre-K and private preschools. Kindergarten teachers' ratings are more consistent with the results from direct assessments than the spring ratings by the children's preschool teachers.

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Table 5.15
Results of Teacher Ratings of Language Development and Communication at the Beginning of Kindergarten (Fall 2002) by Program Type

Language Development and Communication (range:1-7)	Georgia Pre-K n=234	Head Start n=79	Private n=85	Overall n=398
Communication Skills [c]	5.0	4.0	5.1	4.8

[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

Fall 2002: Social and Emotional Development

Teacher Ratings

Similar to the other ratings by kindergarten teachers, teachers considered the behavior of these children as "good", an overall rating of 5 on a 1 to 7 scale (Table 5.16). Ratings of children from Head Start were below those of children from private preschools or Georgia Pre-K. For children from Georgia Pre-K and private preschools, ratings are consistent from spring to fall.

Table 5.16
Results of Teacher Ratings of Social and Emotional Development at the Beginning of Kindergarten (Fall 2002) by Program Type

Social and Emotional Development (range: 1-7)	Georgia Pre-K n=234	Head Start n=79	Private n=85	Overall n=398
Behavior [c]	5.1	4.3	4.9	4.9

[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

Parent Survey

Parents were asked fifteen items from the Social Skills Rating System (SSRS), thirteen of which were combined into four indices: manners; friendly and outgoing; adheres to norms; attitude toward school (Gresham and Elliot, 1990). While all three groups received rather high ratings, parents of children enrolled in Head Start were less likely to rate their children's attitude toward school as positively as parents of children enrolled in Georgia Pre-K or private preschool. The means did not differ significantly between the three groups for "manners."

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For both "friendly and outgoing" and "adheres to norms", parents of children enrolled in private preschool were more likely to attribute these positive characteristics to their children than were parents of children enrolled in Head Start. However none of the parents indicated that their child was never friendly or outgoing or never adhered to norms.

Table 5.17
Results of Parent Survey of Behavior at the Beginning of Kindergarten (Fall 2002) by Program Type

Social and Emotional Development (From SSRS)	Georgia Pre-K n=167	Head Start n=47	Private n=62	Overall n=276
Manners [a] (range: 1-12)	9.0	8.6	8.9	8.9
Friendly and Outgoing [f] (range: 1-12)	10.6	10.2	11.0	10.6
Adheres to Norms [f] (range: 1-9)	7.9	7.6	8.3	7.9
Attitude toward School [c] (range: 1-6)	5.5	5.1	5.7	5.5

[a] The means for all three groups do not differ significantly from one another.
[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.
[f] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in private preschool.

Fall 2002: General Health

Teacher Ratings

Kindergarten teachers rated Head Start children lower in terms of health and physical well-being (Table 5.18). On average, children from Head Start received "good" ratings, while the ratings for the children from the other two groups approached "very good".

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Table 5.18
Health and Physical Well-being Ratings at the Beginning of Kindergarten (Fall 2002) by Program Type

General Health (range: 1-7)	Georgia Pre-K n=234	Head Start n=79	Private n=85	Overall n=398
Health/Wellness [c]	5.7	5.1	5.8	5.6

[c] The means for children enrolled in Head Start differ significantly from the means of the children enrolled in Georgia Pre-K and private preschool.

Parent Survey

Parents rated their children's health between very good and excellent for Georgia's kindergarteners, and the ratings for all three groups were similar (Table 5.19).

Table 5.19
Results of Parent Survey of General Health at the Beginning of Kindergarten (Fall 2002) by Program Type

General Health (range: 1-5)	Georgia Pre-K n=167	Head Start n=47	Private n=62	Overall n=276
General Health Rating [a]	4.4	4.2	4.4	4.4

[a] The means for all three groups do not differ significantly from one another.

Conclusions

Georgia's preschoolers made substantial progress during the year leading up to kindergarten. They moved closer to or further above national norms on standardized measures of language skills and problem solving (pre-math). Kindergarten teachers consistently assigned them average ratings of "good" across academic, behavioral, communication, health and general well-being, and school readiness. Parents rated their behaviors positively. All three groups of children from the different preschool programs made substantial gains and were significantly better prepared to enter kindergarten than preschool.

On average, children from Georgia Pre-K and private preschools were rated as ready for kindergarten and appeared substantially more ready than children from

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Head Start. However, this may tell us more about the developmental status of Head Start participants prior to preschool than about the performance of the Head Start program. At the beginning of their preschool experience, children enrolled in Head Start scored or were rated below children in both of the other two groups on all outcome measures other than those provided by their teachers. In some cases, notably on vocabulary skills, counting and naming colors, children in Head Start appeared to close the gap. The findings presented in this chapter have not controlled for differences in developmental skills at the beginning of preschool or differences in family characteristics. We have added these controls in Chapter 7.

Children attending Georgia Pre-K have begun to close the gaps existing between them and the children in private preschools by the beginning of kindergarten. For example, differences between these two groups in terms of recognizing letters and words and on problem solving skills were no longer statistically significant by the beginning of kindergarten. Kindergarten teachers rated both groups equally ready for school. Parents rated children from both groups equally positive in their attitudes about school. These differences have disappeared even though the children in Georgia Pre-K are from less advantaged homes than those enrolled in private preschools. The foundation appears to be well-laid for success, but success will depend on the effectiveness of kindergarten and early elementary teachers, if the gains from the preschool year are to be continued.

One area for concern is expressive language. The average test score for children from all three program types was less than the national norm, with the average for Head Start children falling 15 percentage points less. Though the gains from fall to spring were significant for the three groups, the averages did not approach the national norm for children of the same age as these children. These results should encourage teachers and administrators in all three program types to engage the children in conversations and focus more attention on having children "use their words" to express themselves and communicate clearly.

These findings lead directly to questions that are addressed in three later chapters. A systematic pattern emerged in this chapter indicating that Head Start teachers rated children considerably higher on all skills, behaviors, and predispositions than kindergarten teachers. In Chapter 6, we ask whether either of these groups distorted ratings systematically. In Chapter 7, we begin to account for differences in developmental status and in family risk factors in analyzing the performance of Georgia Pre-K, Head Start, and private preschools. In Figures 5.1 and 5.2, the leveling out of the gains made during the school year became evident for Georgia Pre-K participants and private preschoolers. These results were analyzed further to see whether they were an artifact of the testing dates or were related to children or family characteristics.

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Chapter 6

Preschool and Kindergarten Teachers' Perceptions of Kindergarten Readiness

Ensuring that all children begin kindergarten ready to learn has been an explicit national goal and a primary objective of Head Start and Georgia's Pre-K Program. Beginning school with the skills and predispositions conducive to learning affects children's academic success. Children who lack basic academic skills at this critical juncture are likely to fall behind their peers and their chances of retention and dropping out before graduating from high school are increased (Alexander & Entwisle, 1993). Teachers' perceptions of children's skills, abilities, and predispositions such as task persistence and classroom behavior during the early childhood years play a particularly important role in children's development as well as their academic success. Teachers' perceptions influence the attention and instruction that children receive, how children are grouped when working together, referrals to special services, and reports on progress that carry on to the later grades.

In this chapter, we address several important issues related to teachers' perceptions as recorded by their ratings of the skills and abilities of individual children. Since similar ratings were obtained at the end of the children's Pre-K year (spring 2002) and the beginning of their kindergarten year (fall 2002), we are able to compare these rating and to analyze their relationships with objective measures of the children's skills and abilities. For children who attended Georgia Pre-K and private preschools, kindergarten teachers' ratings were fairly consistent with preschool teachers' ratings in these skill areas (Figure 6.1). However, children who attended Head Start received ratings by their kindergarten teachers that were substantially lower than ratings made by Head Start teachers.

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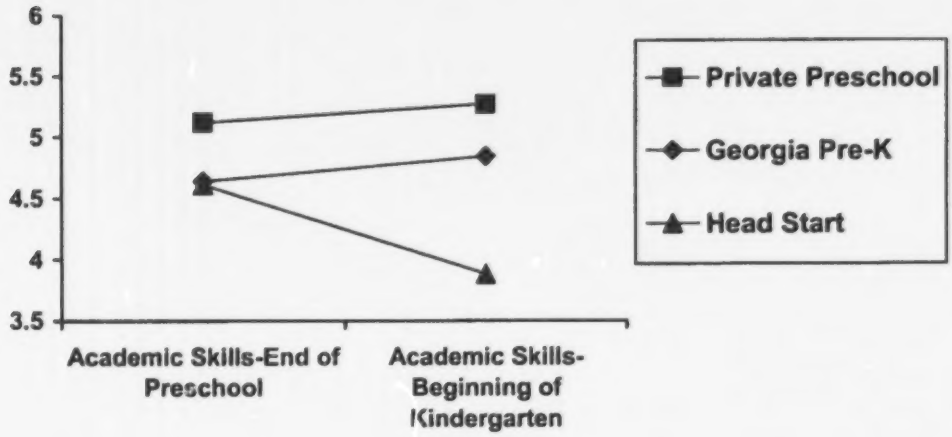
Figure 6.1
Teacher Ratings of Academic Skills at the End of Preschool and Beginning of Kindergarten by Program Type



These results shown in Figure 6.1 triggered important questions regarding teachers' perceptions of children enrolled in Head Start:

1. Are Head Start teachers' ratings of these children's developmental status an accurate reflection of their readiness for kindergarten? Do Head Start teachers rate their children's skills and abilities differently?

2. Are kindergarten teachers' ratings of the developmental status of children who attended Head Start an accurate indication of their readiness for kindergarten? Are children from Head Start stigmatized when they reach kindergarten?

After controlling for a number of child characteristics including demographic and family characteristics, cognitive and language abilities, and basic academic skills, Head Start teachers were found to inflate their ratings of behavior, communication skills, and overall kindergarten readiness. Head Start teachers' inflated ratings may be attributed to Head Start teachers having a different definition of readiness than other preschool teachers or to Head Start teachers making ratings of children's skills that are relative to the skills of other children in the Head Start program rather than the population of children entering kindergarten.

Evidence was weak and inconclusive that kindergarten teachers rated children who attended Head Start systematically lower on ratings of academic skills and communication skills than children who had been enrolled in other preschool programs. The relationships are consistently negative but only sporadically

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significant after controlling for objective measures of the children's language and cognitive skills and their demographic and family characteristics. This suggests that kindergarten teachers may have perceived that children enrolled in Head Start are entering kindergarten with deficiencies relative to children who attended Georgia Pre-K and private preschools, beyond what is explained by child and family characteristics and by objective measures of children's skills and abilities. Possible explanations for the lower ratings upon entry into kindergarten among children who attended Head Start include: a stigma for having attended Head Start among kindergarten teachers, lack of sufficient measures in the analysis to control for actual differences in children's development; or effects of the Head Start program in preparing children for kindergarten.

The remainder of Chapter 6 is divided into three sections. The first section describes the methods we used to measure kindergarten readiness at the end of preschool and at the beginning of kindergarten. The second section presents the results of these teacher ratings by program type. The final section examines characteristics of the child that influence preschool teachers' and kindergarten teachers' ratings.

Measuring Kindergarten Readiness

At the end of preschool and beginning of kindergarten, teachers were asked to rate children in a number of areas that pertain to their readiness for kindergarten, as well as overall readiness. We developed three scales relating to teachers' perceptions of children's readiness for school that are included in this analysis: Academics, Behaviors, and Communication. A single item was also included on both surveys that measured the child's overall readiness for kindergarten. Responses for all items were made along a response scale ranging from 1 to 7 that was anchored by the following descriptions: extraordinarily poor (1), very poor (2), poor (3), average (4), good (5), very good (6), and extraordinarily good (7). For more information on the rating forms refer to Appendix B.

Preschool and Kindergarten Teachers' Ratings of Kindergarten Readiness by Program Type

At the beginning of kindergarten, children from private preschools and children from Georgia Pre-K received significantly higher ratings of academic skills than children enrolled in Head Start (Figure 6.1). In addition, children from private preschool were rated higher than children from Pre-K, on average. Preschool teachers did not rate children in Georgia Pre-K and children in Head Start significantly higher or lower in terms of academic skills, but private preschool teachers rated their students higher than either of the other two groups.

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At the end of preschool, there were no significant differences in preschool teachers' behavior ratings (Figure 6.2) and communication ratings (Figure 6.3) across the program types. However, at the beginning of kindergarten, children who attended Head Start received behavior and communication ratings that were significantly lower than ratings of children who attended Georgia Pre-K and private preschools. Compared to ratings made by their teachers in preschool, children who attended Head Start were rated seven-tenths of one point lower on behavior and over one point lower on communication skills by their kindergarten teachers.

Figure 6.2
Teacher Ratings of Readiness at the End of Preschool and Beginning of Kindergarten by Program Type

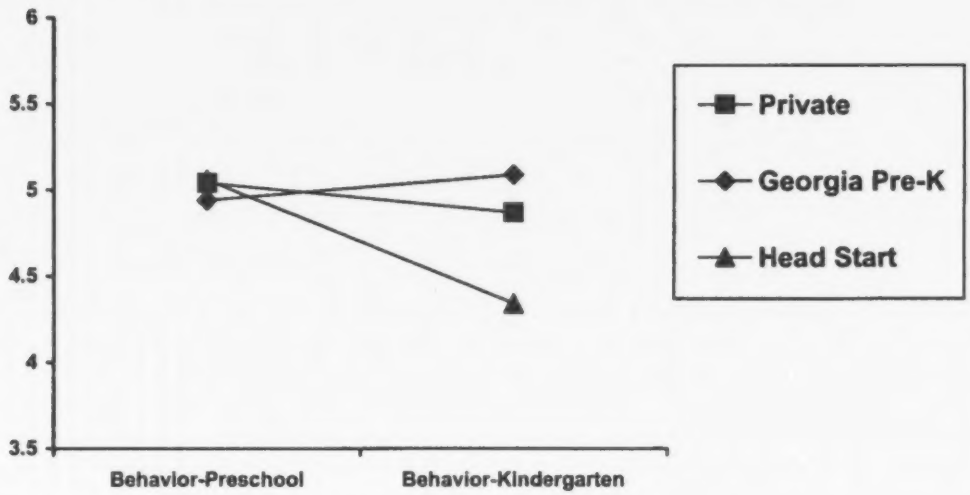
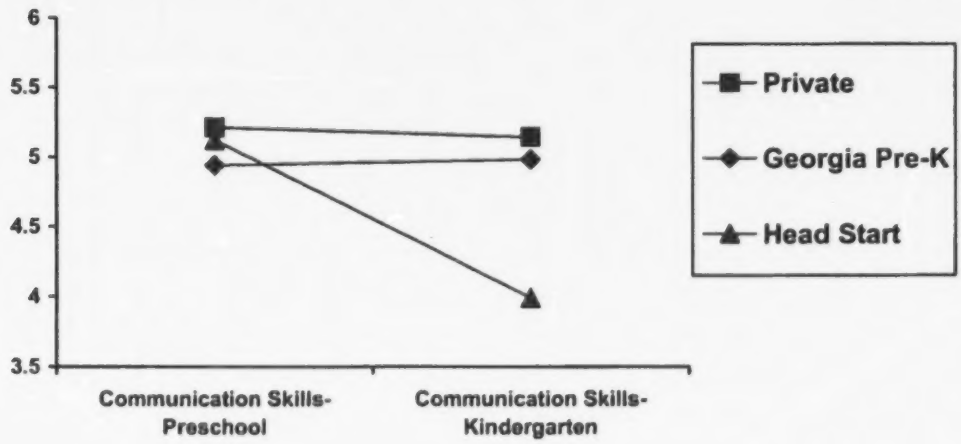
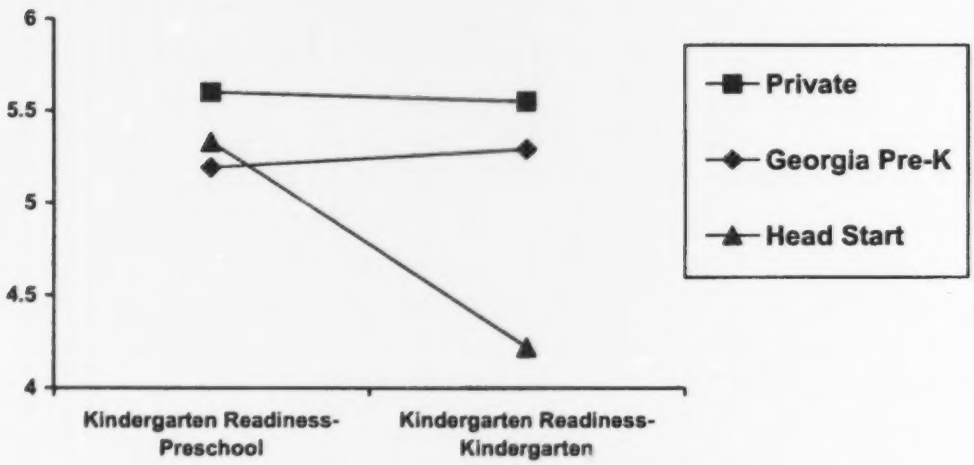


Figure 6.3
Teacher Ratings of Communication Skills at the End of Preschool and Beginning of Kindergarten by Program Type



Preschool teachers' ratings of children's overall readiness for kindergarten were very close when the three programs are compared (Figure 6.4). Private preschool teachers' ratings of kindergarten readiness were highest (mean=5.6), followed by Head Start teachers' ratings (mean=5.3), and Georgia Pre-K teachers' ratings (mean=5.2). At the beginning of kindergarten, kindergarten teachers rated the readiness of children who attended private preschools and the readiness of children who attended Georgia Pre-K consistently with the ratings made by preschool teachers. However, children who attended Head Start received readiness ratings by their kindergarten teachers that were on average over one point lower than Head Start teachers' ratings of readiness.

Figure 6.4
Teacher Ratings of Kindergarten Readiness at the End of Preschool and Beginning of Kindergarten by Program Type



Child Characteristics that Influence Preschool Teachers and Kindergarten Teachers Ratings

Head Start teachers' ratings of academic skills, behaviors, communication skills, and overall readiness for kindergarten were much higher than the same ratings made by kindergarten teachers a few months later. Differentials in summer learning loss (see Chapter 11) might not explain differences of this magnitude. Therefore, we examined these ratings controlling for objective measures of the children's skills and abilities and child and family characteristics that may account for the differences. If attributes of the children or their families explained the differences, we expected that systematic differences in the ratings from one program to another would disappear or at least be substantially reduced.

Both sets of ratings were analyzed controlling for the following characteristics: demographics (sex, race, and age); five child and family risk characteristics; basic academic skills at the end of preschool or beginning of kindergarten, cognitive and language abilities at the end of preschool or beginning of kindergarten; and the type of preschool program that the child attended.

Academic Skills

The relationships between child characteristics and ratings of academic skills made by preschool teachers and kindergarten teachers are presented in Table 6.1. Children's skills and abilities in naming colors, naming numbers, letter-word recognition, and expressive language were positively related to preschool

teachers' ratings of academic skills. Preschool teachers assigned lower ratings to boys, younger children, children whose mothers had lower levels of education, and children whose parents had lower levels of participation in school. One other family risk characteristic - family received means tested benefits - was also significantly related to preschool teachers' academic skill ratings; however, children having this risk factor were rated significantly higher after controlling for all the other factors. The coefficients associated with private preschool and Pre-K were both negative, indicating that Head Start teachers rated students with similar characteristics higher than other teachers, but the differences were not statistically significant.

Kindergarten teachers' ratings of academic skills were positively associated with counting skills, story and print concepts, number naming, letter-word abilities, and phonological processing skills. For kindergarten teachers' ratings of academic skills, boys also received lower ratings than girls, and older children preformed better. Race and the family risk characteristics were not systematically related to kindergarten teachers' ratings after children's skills and abilities were taken into account. Kindergarten teachers' ratings of academic skills were also associated with the type of preschool program that the child attended. Thus, after controlling for all of the other child characteristics, children who attended Head Start received academic skill ratings that were over one-fourth of one point lower than children who attended Georgia Pre-K, and four-tenths of one point lower than children who attended private preschools.

Table 6.1
Unstandardized Regression Coefficients for Predictors of Academic Skills at the End of Preschool and Beginning of Kindergarten

Child Characteristics	End of Preschool	Beginning of Kindergarten
Sex (Boy=1)	-.262*	-.353*
Race: African American vs. White	-.043	.131
Other vs. White	.164	.110
Age	.745*	.944*
Mother's Education	.079	.066
Parent Participation	.165*	.034
Received Means Tested Benefits	.352*	.126
Not Lived with Both Parents	.063	-.075
Referred for Language Assistance	.271	.103
Program Type: Pre-K vs. HS	-.253	.254
Private vs. HS	-.192	.426*
Color Bears	.065*	-.013
Counting Bears	.091	.169*
Story and Print	.053	.059*
Number Naming	.045*	.121*
PPVT	-.010	-.002
WJ-III Letter Word	.012*	.020*
WJ-III Applied Problems	.008	.005
OWLS	.013*	n/a
CTOPP—Elision	n/a	.070*
CTOPP—Sound Matching	n/a	.060
Total Variance Explained (R^2)	**.379**	**.511**

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Behavior

Preschool teachers gave lower behavior ratings to boys and to children whose parents had lower ratings of participation in school. Behavior ratings should have only a moderate association with the child's academic skills and abilities, and results confirmed that only two academic tests - color naming and story and print concepts - were associated positively with ratings of children's behavior. Preschool teachers' behavior ratings were significantly related to the type of preschool program in which the child was enrolled. After accounting for the other child characteristics in the analysis, children in Head Start received behavior ratings by their Head Start teachers that were nearly one-half point higher than behavior ratings of children attending Georgia Pre-K and private preschools.

Kindergarten teachers rated girls, children who lived at home with both parents since birth, children whose parents had higher rates of participation in school, and children who had received any means tested benefits as better behaved. Behavior ratings were also positively related to counting skills, number naming, and phonological processing skills. In contrast to kindergarten teachers' academic ratings, preschool program from which children came did not systematically affect their behavior ratings.

Table 6.2
Unstandardized Regression Coefficients for Predictors of Behavior Skills at the End of Preschool and Beginning of Kindergarten

Child Characteristics	End of Preschool	Beginning of Kindergarten
Sex (Boy=1)	-.452*	-.323*
Race: African American vs. White	.038	.235
Other vs. White	.333	.213
Age	.226	.463
Mother's Education	.032	.072
Parent Participation	.198*	.158*
Received Means Tested Benefits	.088	.384*
Not Lived with Both Parents	-.126	-.405*
Referred for Language Assistance	.151	-.055

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Program Type: Pre-K vs. HS	-.421*	.193
Private vs. HS	-.459*	-.084
Color Bears	.067*	-.045
Counting Bears	.063	.132*
Story and Print	.070*	.012
Number Naming	-.002	.073*
PPVT	-.010	.009
WJ-III Letter Word	.005	-.003
WJ-III Applied Problems	.002	.002
OWLS	.007	n/a
CTOPP—Elision	n/a	.016
CTOPP—Sound Matching	n/a	.109*
Total Variance Explained (R^2)	**.199**	**.279**

Communication Skills

Children's expressive language abilities, ability to comprehend story and print concepts, and color naming were associated positively with preschool teachers' ratings of communication (Table 6.3). Preschool teachers assigned higher communication ratings to girls, children whose parents' participation in preschool was higher, and children referred for language assistance services. There was also a significant effect on communication ratings related to the type of preschool that children attended, such that Head Start teachers rated children's communication skills about one-half point higher than Pre-K teachers and private preschool teachers, after the children's skills and abilities and other characteristics were taken into account.

Kindergarten teachers' ratings of communication skills were positively and significantly related to children's abilities to count, name numbers and their comprehension of written materials. Communication skills were judged better for girls than boys, older children, children whose parents had higher participation in school, and children from families that had received means tested benefits. Children who attended Georgia Pre-K received communication ratings by their kindergarten teachers that were over one-third of a point higher than the ratings

for children who attended Head Start after the other skills and characteristics were taken into account.

Table 6.3
Unstandardized Regression Coefficients for Predictors of Communication Skills at the End of Preschool and Beginning of Kindergarten

Child Characteristics	End of Preschool	Beginning of Kindergarten
Sex (Boy=1)	-.358*	-.337*
Race: African American vs. White	.055	.089
Other vs. White	.101	-.038
Age	.354	.563*
Mother's Education	.033	.064
Parent Participation	.186*	.154*
Received Means Tested Benefits	.170	.262*
Not Lived with Both Parents	-.067	-.242
Referred for Language Assistance	.347*	-.247
Program Type: Pre-K vs. HS	-.493*	.343*
Private vs. HS	-.427*	.223
Color Bears	.050*	-.030
Counting Bears	.091	.181*
Story and Print	.066*	.069*
Number Naming	.023	.068*
PPVT	-.007	.005
WJ-III Letter Word	-.001	.006
WJ-III Applied Problems	-.002	.008
OWLS	.017*	n/a

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CTOPP—Elision	n/a	.020
CTOPP—Sound Matching	n/a	.057
Total Variance Explained (R^2)	**.272**	**.451**

Overall Kindergarten Readiness

Counting and letter-word abilities were associated positively with preschool teachers' ratings of children's readiness for kindergarten. Boys and younger children were rated significantly less ready for kindergarten than girls. Children whose parents' participation in school was lower were also judged by teachers to be less ready for kindergarten. The type of preschool program also had an influence on preschool teachers' readiness ratings. After accounting for children's skills, abilities, and other characteristics in the analysis, children enrolled in Head Start were rated over one-half point higher than children enrolled in Georgia Pre-K and private preschools. This indicates that Head Start teachers' readiness ratings were systematically inflated relative to the ratings made by Georgia Pre-K and private preschool teachers.

Children's abilities to count, name numbers, comprehend stories and match sounds influenced kindergarten teachers' assessments of school readiness, providing a strong indication that these basic skills are extremely important for beginning kindergarteners. After controlling for children's skills and abilities and all of the other factors in the analysis, boys and younger children had lower ratings of readiness than girls. Higher ratings of readiness were assigned to African American as compared to White children, as well as children whose parents participated more in school. Readiness ratings for children who attended Georgia Pre-K and private preschool were higher than those for children who attended Head Start, but not significantly so after accounting for the other factors.

Table 6.4
Unstandardized Regression Coefficients for Predictors of Kindergarten Readiness at the End of Preschool and Beginning of Kindergarten

Child Characteristics	End of Preschool	Beginning of Kindergarten
Sex (Boy=1)	-.330*	-.369*
Race: African American vs. White	.125	.302*
Other vs. White	.159	.135

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Age	1.07*	.804*
Mother's Education	-.028	.069
Parent Participation	.223*	.117*
Received Means Tested Benefits	.019	.177
Not Lived with Both Parents	.083	-.057
Referred for Language Assistance	.188	-.009
Program Type: Pre-K vs. HS Private vs. HS	-.615* -.534*	.215 .249
Color Bears	.032	-.008
Counting Bears	.128*	.243*
Story and Print	-.004	.077*
Number Naming	.033	.164*
PPVT	.003	.004
WJ-III Letter Word	.018*	.010
WJ-III Applied Problems	.009	.007
OWLS	.009	n/a
CTOPP—Elision	n/a	.042
CTOPP—Sound Matching	n/a	.083*
Total Variance Explained (R^2)	**.352**	**.528**

Conclusions

Discrepancies clearly exist between Head Start teachers' and kindergarten teachers' skill ratings of children who attended Head Start. For ratings of behavior, communication skills, and overall readiness for kindergarten, Head Start teachers appear to have systematically inflated the ratings of the children in their classes when compared to children enrolled in Georgia Pre-K and private

preschools. Kindergarten teachers rated children who attended Head Start consistently lower than children who attended Georgia Pre-K and/or private preschools, but the differences were only sporadically significant.

There are a number of possible explanations for why Head Start teachers may overestimate children's readiness for kindergarten. Teachers may make their ratings of readiness relative to the other children whom they teach. As noted in Chapter 3, children enrolled in Head Start entered preschool having on average significantly lower academic skills and abilities relative to their counterparts in Georgia Pre-K and private preschools. Thus, a child who attended Head Start may receive average skill ratings by a kindergarten teacher; however, the child may possess skills and abilities that were above average relative to other children within the Head Start class. Another possible explanation for inflated ratings is that Head Start teachers may have different definitions for what is kindergarten readiness. Head Start serves at-risk children with a goal of providing a comprehensive curriculum involving health, social-emotional development, and academic skills. This is in contrast to some Georgia Pre-K programs, private preschools, and kindergarten programs that focus more on fostering development of academic skills in particular. Thus, academic skills and abilities that were included in this analysis may be less related to the ratings of Head Start teachers than teachers in other preschool programs.

No matter what the source of the discrepancy, these findings strongly suggest that Head Start teachers should acquire a better understanding of what children need to be successful in kindergarten and which skills and abilities kindergarten teachers expect the children in their classrooms to have. It is likely that these expectations are informally transmitted when preschool teachers routinely interact with kindergarten teachers. This may be one factor that contributed to the success of school-based early education programs (Reynolds 2000; Reynolds, et al. 2001).

For effective transition from preschool to kindergarten and for kindergarten teachers to advance children more quickly into learning higher order skills, it is important that expectations for the children be set collaboratively and inclusively. Even if the information exists in many places, a more formal process and thorough dissemination of the expectations should be considered and should include teachers from all three preschool programs as well as public and private kindergartens. These expectations could be also made available to parents who choose home or informal care for their four year-olds through the World Wide Web.

There are three plausible reasons why kindergarten teachers assigned systematically lower ratings to children who attended Head Start. The most worrisome is that kindergarten teachers may have possessed negative views about children who attended Head Start and that those views resulted in stigmatizing these children. A second potential reason is that this analysis may

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not have fully controlled for all of the variables such as family background characteristics that influence the abilities of the Head Start children who kindergarten teachers assessed. A final possible reason that could explain why kindergarten teachers assigned lower ratings to children who attended Head Start is that there may be less positive effects of the Head Start program in preparing children on the skills important to kindergarten teachers. The primary learning goals of the Head Start program have focused on building healthy, socially competent children, rather than on academic skills whereas Georgia Pre-K and private preschools emphasize academic skills and preparation for school success. These effects were weak and sporadic but bear watching in the future.

Another important finding from these analyses is the different child characteristics that prove to be important in preschool teachers' and kindergarten teachers' formulation of their ratings of children. For ratings made by both groups of teachers, specific academic skills such as counting, colors, number naming, and story and print concepts were more highly related to teachers' ratings than measures of children's cognitive and language abilities such as receptive and expressive language abilities, and ability to correctly solve applied problems. These academic skills may have been more readily observable by teachers than the cognitive and language abilities measured in the standardized assessments. But it may also be the case that kindergarten teachers are using skills that are extremely basic to judge readiness.

Kindergarten teachers' ratings are more strongly influenced by objective measures of children's abilities, especially for readiness and academic skills, than by characteristics of the children's home environment. This may indicate that the children's family characteristics play a larger role in children's behavior and communication than in their academic skills.

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Chapter 7

Comparing the Performance of Georgia Pre-K

One goal of the Early Childhood Study was to understand the extent to which the Georgia Pre-K Program improved the development of the four year-olds it serves and how well the program has prepared them for kindergarten. Chapter 5 recounted the significant developmental gains posted by children in Georgia Pre-K as well as Head Start and private preschools. Comparing these gains did not allow us to assess program performance directly because the children served were different in terms of family risks and development at the beginning of their preschool year. In this chapter, we analyzed children's development in ways that account for demographic differences in order to assess program performance.

The strongest evidence about program performance comes from the direct assessments that were administered at least three times during the first year of the study (Table 7.1). Controlling for individual characteristics and family risks, children who participated in Georgia Pre-K gained:

- 3.0 points on national norms for solving pre-math problems;
- 3.4 points on national norms for letter and word recognition;
- 3.9 points on national norms for vocabulary;
- 3.0 points on understanding printed material and story comprehension; and
- mastery of one additional basic skill, either naming numbers, naming colors, or counting, on average.

The next section presents the results obtained for each of the direct assessments. Those findings are followed by the analyses of the other child outcomes. Conclusions are drawn at the end of the chapter.

Growth and Outcomes at Kindergarten Entry

To understand the children's development, we estimated their development upon entry into preschool to their entry into kindergarten using a technique that computes a linear growth path for each child. The data were organized to make all estimates based on the day that most kindergarteners in Georgia started school in 2002. All five direct assessment measures that were administered at three time periods (the minimum number required to compute the linear growth) were included in these analyses. These analyses systematically accounted for differences in the four family risk factors and individual characteristics on children's developmental growth and status at kindergarten entry.

After accounting for differences in family risks and individual characteristics, Pre-K participants entered kindergarten prepared similarly to children who attended private preschool on the five measures used (see Table 7.1). Children who participated in Head Start did not enter kindergarten as ready as the other children. Head Start children performed significantly worse in tests concerning letter-word recognition (-3.5), vocabulary (-3.0), and story and print comprehension (-0.5).

During the course of the preschool year, Pre-K gains were statistically similar to gains posted by children in the other two groups. Head Start children achieved significantly higher gains in their vocabulary (+2.9) than children who were enrolled in Georgia Pre-K. Gains by children from private preschools were significantly higher for story and print comprehension (+0.7), but insignificantly different on the other assessments.

Table 7.1
Comparing Georgia Pre-K Performance to Head Start and Private Preschool

Comparison Relative to Pre-K	Pre-Math Problem Solving	Letter-Word Recognition	Vocabulary	Story & Print Compre-hension	Basic Skills Mastery
Fall to Fall Gain	**3.0**	**3.4**	**3.9**	**3.0**	**1.0**
Head Start at Kindergarten Entry	-1.8	**-3.5**	**-3.0**	**-0.5**	-0.1
Head Start Gain	0.2	0.6	**2.9**	-0.4	0.1
Private Preschool at Kindergarten Entry	1.4	1.9	.9	0.2	0.2
Private Preschool Gain	-0.7	-1.6	-0.9	**0.7**	0.1
Boys	**-1.8**	**-3.3**	-0.3	**-0.7**	**-0.3**
African American	**-8.9**	0.5	**-9.1**	**-1.2**	**-.01**
Other Minority	**-3.0**	**3.2**	**-6.4**	**-0.5**	0.1
Mother's Education	**2.6**	**2.3**	**2.5**	**0.4**	**0.1**
Lived with Both Parents Continuously Since Birth	-0.5	0.1	**-2.7**	-0.3	-0.1
Parental Involvement with Preschool	**1.2**	**1.2**	**1.1**	**0.2**	**0.1**
Family Received Means Tested Benefit	0.0	-2.0	-1.5	-0.1	-0.1
Age at Preschool Entry	**-4.8**	**-8.6**	-1.4	**1.6**	**0.6**
Intercept	**97.0**	**95.6**	**99.5**	**8.5**	**2.7**

Bold indicates group was significant differences at the .05 level..

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Several individual characteristics and family risks affected the developmental status of Georgia's preschoolers on entry into kindergarten (see Table 7.1). Boys scored less well on every one of the five assessments, but their vocabulary was not significantly different from girls. African American children preformed equally well in terms of identifying letters and words (+0.5), after accounting for other factors, but they were significantly behind on the other measures. Again, after accounting for other factors, other minorities did better than White children on recognizing letters and words (+3.2), and equally well in mastery of basic skills (+0.1). However, the scores of other minorities lagged on the other three measures. As often occurs with standardized measures that adjust for children's age, older children did less well, since the bar is raised for them. However, these children scored systematically higher on the two non-standardized assessments, print recognition (+1.6) and basic skills mastery (+0.6).

Mother's education was the most influential family characteristic across the five measures, followed by parent involvement as rated by preschool teachers. Mothers who were one unit more educated had children whose scores on normed assessments were 2.3 to 2.6 units higher, after accounting for other factors. Children whose parents were more involved with their preschool scored higher on all five of the assessments. After the other factors were accounted for, receiving means tested benefits and having lived continuously with both parents since birth had little impact on children's scores. Curiously, children who had lived continuously with both parents since birth did not score as high on the vocabulary assessment (-2.7) as other children.

Comparing Georgia Pre-K Performance on Other Outcomes

The goals of the Georgia Pre-K Program, like many other preschool programs, include enhancing children's social and emotional development and improving other outcomes that contribute to school success. We analyzed eight additional outcomes to develop a more complete picture of differences in children's development that may influence future success. Five of the outcomes were kindergarten teachers' rating of children's skills, behaviors, and predispositions; and three were direct assessments, including expressive language at preschool exit and two phonemic awareness sub-tests at kindergarten entry. All analyses included family risk factors and individual characteristics to account for their influence on the outcomes.

Teachers' Ratings

Kindergarten teachers rated their students at the beginning of the school year on a number of skills, abilities and predispositions, including school readiness, academic skills, behaviors, health and well-being, and communication skills (see Table 7.2). After controlling for children's characteristics, family risk, and baseline scores at kindergarten entry, children who attended Georgia Pre-K began kindergarten with higher ratings than Head Start children on all five

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measures, and significantly higher on three. The differences amounted from one-quarter to one-half point on a seven-point scale. Also, the children who attended Pre-K began with higher ratings than private preschools on four of five ratings but only one difference was statistically significant. Behavior of children who attended private preschool was judged worse by teachers (-0.35) than children who attended Pre-K after controlling for other factors. However, since none of the baseline measures related to the behavior ratings, this difference may have existed prior to preschool.

Table 7.2
Comparing Georgia Pre-K Performance to Head Start and Private Preschool

Factors Affecting Teachers' Ratings	Kindergarten Readiness	Kindergarten Academic Skills	Kindergarten Communication Skills	Kindergarten Behaviors	Kindergarten Health & Well-being
Head Start children compared to Pre-K	**-0.59**	**-0.50**	**-0.42**	-0.31	-0.24
Private Preschoolers compared to Pre-K	-0.03	0.12	-0.06	**-0.35**	-0.12
Boys	-0.18	-0.20	**-0.24**	-0.18	0.07
African Americans	**0.39**	0.15	0.13	0.20	**0.27**
Other Minorities	**0.78**	**0.59**	**0.40**	**0.39**	0.33
Age	**1.00**	**0.86**	**0.55**	0.26	0.32
Mother's Education	0.05	0.03	0.06	0.06	0.04
Lived with Both Parents Continuously Since Birth	0.10	0.03	-0.13	**-0.32**	-0.15
Parental Involvement with Preschool	**0.13**	0.07	**0.16**	**0.14**	**0.20**
Family Received Means Tested Benefit	0.13	0.16	0.22	**0.35**	0.05
PPVT baseline	0.01	0.00	0.00	0.01	0.00

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Letter Word Recognition Baseline	**0.02**	**0.02**	**0.01**	0.01	**0.01**
Problem Solving Baseline	**0.01**	**0.01**	0.01	0.00	0.00
Story & Print Comprehensi on Baseline	0.04	0.03	**0.06**	0.06	0.00
Basic Skills Mastery Baseline	**0.16**	**0.25**	0.12	0.13	**0.14**
Expressive Language Baseline	0.01	0.01	**0.02**	0.01	**0.01**
Intercept	4.77	4.32	4.56	4.56	5.23

Bold indicates group was significant differences at the .05 level..

Ratings for other minorities and African-American children were higher than for White children in all five rating categories after controlling for other factors. The differences were significant in four out of five categories for other minorities and two out of five categories for African American children. Parent involvement was found to be systematically related to children's development at kindergarten entry, more consistently than for any other family characteristic. Overall, between 29 and 43 percent of the variance in each rating category was explained by the variables in the equations.

Direct Assessments

After controlling for individual and family characteristics as well as for language and problem solving skills at preschool entry, the type of preschool that a child attended did not make a significant difference in children's expressive language or phonemic awareness (Elision and Sound Matching; see Table 7.3).

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Table 7.3
Comparing Georgia Pre-K Performance to Head Start and Private Preschool

Factors affecting Teachers' Ratings	Elision	Sound Matching	Expressive Language
Head Start children compared to Pre-K	0.01	-0.28	-1.62
Private Preschoolers compared to Pre-K	-0.10	-0.42	1.66
Boys	**0.44**	0.14	0.11
African Americans	-0.18	-0.01	-1.30
Other Minorities	0.03	**0.86**	-0.44
Age	-0.49	**-0.86**	**-4.87**
Mother's Education	0.18	**0.20**	-0.11
Lived with Both Parents Continuously Since Birth	-0.16	0.13	0.08
Parental Involvement with Preschool	0.05	0.09	**0.92**
Family Received Means Tested Benefit	0.29	-0.28	0.68
PPVT baseline	0.01	0.00	**0.12**
Letter Word Recognition Baseline	**0.02**	**0.03**	-0.04
Problem Solving Baseline	**0.03**	**0.02**	**0.13**
Print & Story Comprehension Baseline	0.08	0.06	**0.91**
Basic Skills Mastery Baseline	**0.37**	**0.26**	0.83
Expressive Language Baseline	**0.02**	0.02	**0.47**
Intercept	8.15	8.76	-6.18

Bold indicates group was significant differences at the .05 level.

Boys scored higher on the Elision test than girls (+0.44) and insignificantly higher on the other two tests. Ratings for other minorities and African American children were lower than for White children on all three tests, though the differences were

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not significant. The differences were significant in four out of five categories for other minorities and two out of five categories for African American children. Other minority children performed significantly better than White children on the Sound Matching Test (+0.86) and insignificantly different than Whites on the other two tests. As often occurs with standardized measures that adjust for children's age, older children did less well, since the bar is raised for them. While there were no significant differences with the Elision Test (-0.49), the older children performed worse on the Sound Matching Test (-0.86) and the test of Expressive Language (-4.87). The more involved the parents were in school, the higher the Expressive Language score (0.92). None of the other family and individual characteristic factors were significant. Finally, in order to account for unmeasured abilities, we included entry into preschool measures from the direct assessments. For instance, basic mastery skills were highly predictive of Elision (+0.37) and Sound Matching Tests (+0.26), but not of Expressive Language (0.83).

Conclusion

Four year-olds who attend Georgia's Pre-K program receive substantial benefits from participating in the program. The evidence presented here indicates that Georgia's kindergarteners begin school in a better position because so many of them attended the state's prekindergarten program. While the gap between Georgia's kindergarteners and the national norm, the average score on standardized tests for children of their ages, has not been eliminated, it closed substantially. In the next chapter, we focus on the effects of Georgia's Pre-K Program on children from disadvantaged families. Improving the outcomes of the most disadvantaged children, while maintaining the overall program gains for all children, may be the pivotal challenge for completely closing the gap.

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Chapter 8

Comparing the Performance of Publicly Funded Early Childhood Programs on Disadvantaged Children

Enhancing the development of children from economically disadvantaged families has been a primary goal of publicly funded early childhood programs, including Georgia's Pre-K Program and Head Start. The performance comparisons in Chapter 7 included children from across the economic spectrum. For this chapter, the performance of Georgia's Pre-K Program was assessed by comparing the development of economically disadvantaged children who attended Pre-K with children from Head Start.

The effectiveness of preschool programs can be judged by the skills and dispositions of children at kindergarten entry and by the rates of gain during preschool. At their entry to kindergarten, economically disadvantaged children who had been enrolled in Georgia's Pre-K Program outperformed similar children from Head Start on all five assessments administered at three time periods. Differences upon entering kindergarten, after controlling for family differences, demographics, and selection were estimated to be:

- 6.2 points on letter and word recognition;
- 3.4 points on vocabulary (receptive language);
- 0.7 points on story comprehension and print familiarity;
- 5.6 points on problem solving (pre-math);
- 0.3 points on mastery of basic skills.

Differences on other directly assessed measure and kindergarten teachers' ratings were similar. The gains posted by both groups of children were similar on the five assessments above, except that Head Start children gained more vocabulary than the Pre-K children.

First, this chapter will describe how the sub-sample of children enrolled in Pre-K was selected for the comparison with children enrolled in Head Start. Baseline scores for these children and their family and individual characteristics are compared. Second, the Pre-K children from economically disadvantaged families (sub-sample) are compared with Head Start children on direct assessments, and teacher ratings. Finally, the programs themselves will be compared on student and teacher outcomes. Because parents may select one program or the other based on unmeasured factors, we modeled a selection process to further reduce any bias in the estimates of effects.

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Selecting the Pre-K Sample

In order to assess the performance of Pre-K with economically disadvantaged children, a sub-sample of children enrolled in Pre-K was matched to children enrolled in Head Start based on a variety of characteristics including race, sex, location (urban, rural, or other) and a compilation of family risk factors. This compilation utilized propensity score (p-score) analysis to form an index or p-score that represents the probability of belonging to a specific group (Head Start) based on family characteristics.

For all children enrolled in Head Start and Pre-K, a p-score was generated based on the following variables: risk 1 (distinguishing characteristic was TANF eligible children whose primary caregiver had not completed High School), risk 2 (distinguishing characteristic was low-income children eligible for Food Stamps and Medicaid whose primary caregiver generally had a high school education), risk 3 (distinguishing characteristic was lower to middle-income children), risk 4 (distinguishing characteristic was middle to upper-income children), living arrangement (if the children had lived with both parents since birth), and parent participation (the children's preschool teachers' assessment of parent participation in the classroom). Based on these characteristics, the p-score estimated the probability of enrolling in Head Start.

Once the p-score was generated, Head Start children were matched with a Pre-K child with the closest p-score who also matched on location, sex, and race. For example, if a White girl living in an urban area who attended Head Start had a p-score of .425, she was matched with a White girl living in an urban area who attended Pre-K with the closest p-score to .425. Generally, the p-score matches were within one-hundredth of a point of each other. Therefore, both of these girls of the same race who lived in an urban area had an equal likelihood of attending Head Start.

The matched sample included 125 Head Start children (n = 134) who were successfully matched with 106 children who attended Pre-K (weighted to equal 125). Therefore, the matched sample contained an even number of Head Start and Pre-K children who had a relatively equal probability of attending Head Start and similar demographic characteristics (Table 8.1).

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Table 8.1
Matched-Sample Descriptive Statistics

Mean		Head Start n = 125	Pre-K n = 125
Gender – Male[1]		.54	.53
Race	White[2]	.30	.30
	Non-white[3]	.70	.70
Risk 1[4]		.15	.10
Risk 2[5]		.68	.70
Risk 3[6]		.16	.19
Risk 4[7]		.00	.00
Highest level of education by parent		2.27	2.42
Mother's education*		1.94	2.27
Living Arrangement		.63	.69
Parent Participation		4.77	4.84
Income		2.28	2.33
P-score		.46	.45

1 – coded as "1" for male and "0" for female;
2 – coded as "1" for white and "0" for non-white;
3 – coded as "1" for non-white and "0" for white;
4 – coded as "1" for risk 1 eligible and "0" for not eligible;
5 – coded as "1" for risk 2 eligible and "0" for not eligible;
6 – coded as "1" for risk 3 eligible and "0" for not eligible;
7 – coded as "1" for risk 4 eligible and "0" for not eligible.
* differences significant at the .05 level.

The matched sample also was similar in terms of their developed skills upon entering preschool (Figure 8.1). There were no significant differences in baseline test data on four of six direct assessments. In fact, the only significant differences between the two groups were number of basic skills mastered (0.2 skills different) and vocabulary (4.2 points).

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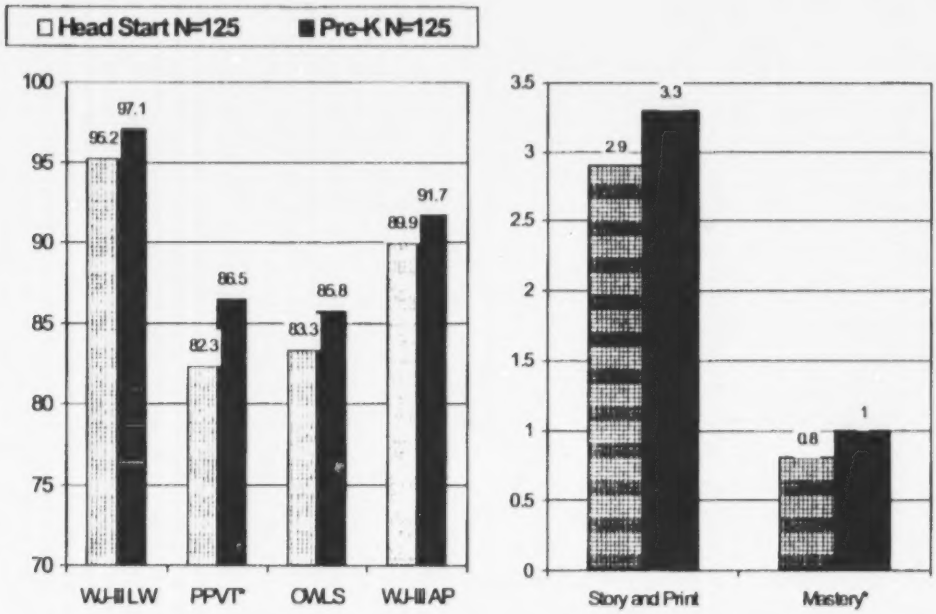
Figure 8.1
Baseline Test Data, Fall 2001



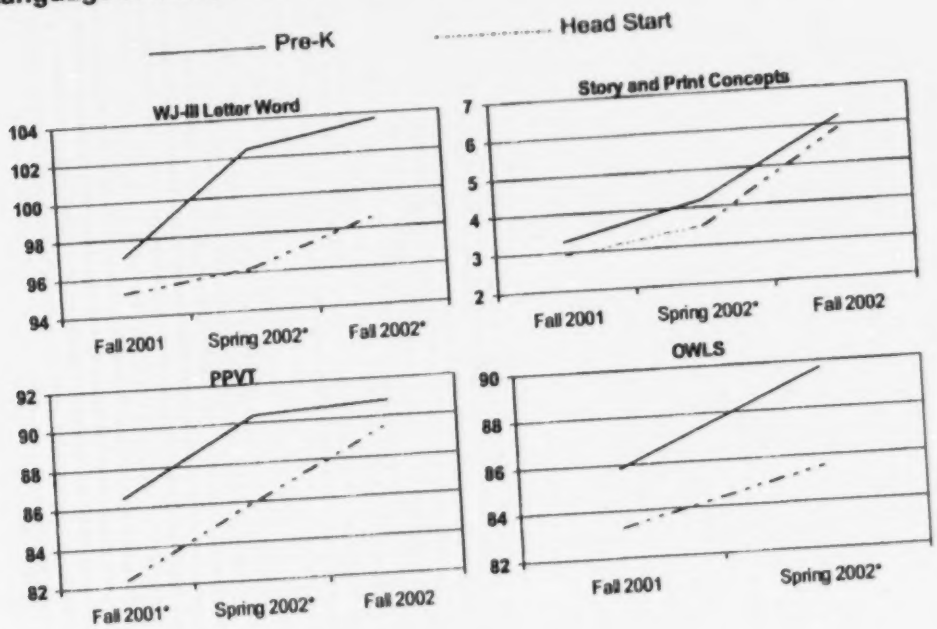
* Significant at the .05 level.

Child Outcomes

Direct Assessments

For the assessments of language and communications skills, all four indicate widening gaps through the end of the preschool year (Figure 8.2). As will be shown in Chapter 11, Head Start children may have closed the gap on some tests over the summer. While in all four cases shown in Figure 8.1, Pre-K children began preschool slightly ahead of their Head Start peers, only in the case of vocabulary were the differences statistically significant; however, by the beginning of the kindergarten year, the children enrolled in Head Start had closed the gap. The largest gaps were for letter and word recognition at the beginning of kindergarten and expressive language (OWLS) at the end of preschool, the last time this skill was measured.

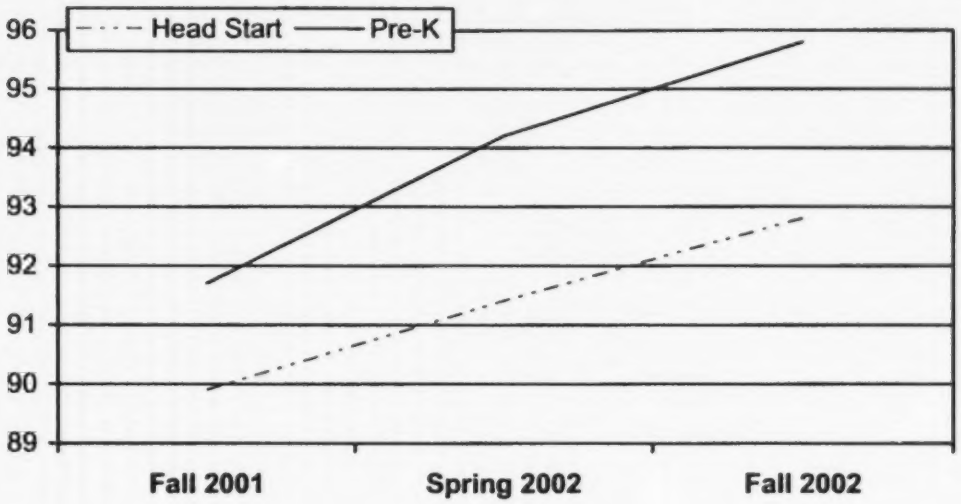
Figure 8.2
Language Development and Communication



* Significant at the .05 level.

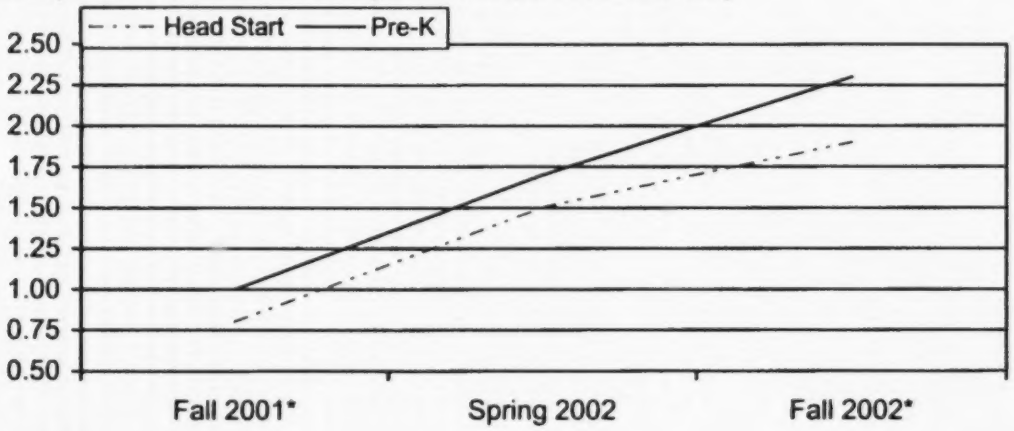
In terms of problem solving skills, disadvantaged children attending Georgia's Pre-K Program gained significantly during their preschool year but their growth paralleled that of children in Head Start during the summer (Figure 8.3). The difference between the two groups of children, 1.8 points at the baseline was not significant, but the gap increased to 3.0 points by the beginning of kindergarten.

Figure 8.3
Comparison of Matched Samples on Problem Solving Skills



As previously stated, at their entry into preschool in fall 2001, the two groups of children did not differ on four of the skills that were directly assessed at that time. One exception was in the number of basic skills mastered; Head Start children had mastered 0.8 skills on average and Pre-K children had mastered 1 of the three skills tested (Figure 8.4). The gap widened to a statistically significant four tenths of a point by kindergarten entry.

Figure 8.4
Comparison of Matched Samples on Basic Skills Mastery



* Significant at the .05 level.

Teacher Ratings

Children who had been in Georgia's Pre-K Program were judged to be more ready for kindergarten, more skilled academically, better behaved, and better at communicating than children who had participated in Head Start (Table 8.2). On the health and physical well-being rating provided by kindergarten teachers, there was no difference between the two groups of children. On two additional assessments of language and communication skills, the children were not different, but Pre-K participants were better at sound matching than their peers from Head Start. On the skills assessed in this study that covered four important dimensions of the development of young children, Georgia's Pre-K Program produced substantial benefits for children with significant economic disadvantages.

Table 8.2
Comparing Kindergarten Teacher Assessments for Head Start and Matched Georgia Pre-K

Skill Rating Range: 1-7	Head Start	Pre-K
Readiness*	4.3	5.2
Academic*	3.9	4.7
Behavior*	4.4	4.9
Communication*	4.0	4.7
Health/ Well-being	5.2	5.5

* Differences between Head Start and Pre-K are significant at the .05 level.

Program Performance Differences

Selection Model

Parents who are eligible to enroll their children in Head Start can choose either Head Start or Georgia's Pre-K Program. Parents' decisions may be influenced by their perceptions of the advantages of one program over the other, needs of their children, or the program's efforts to recruit children. If these decisions result in systematic differences between the children who enrolled or the families of those children, these differences can bias the estimates of the effects of Pre-K. Selection models are often used to control for the influence of factors that may be related to children's development but have not been directly measured and incorporated into the analysis. The selection model used for this study included variables (identifying instruments) such as percent of African Americans residing in the county, whether the child had a dental exam, per capita lottery receipts received by the county, percentage of children in poverty, number of government employees, and population of the county. These estimates were incorporated into the analysis of Pre-K performance to reduce biases that may arise from underlying (unobserved) selection processes.

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Performance Differences

By the beginning of kindergarten, children who had been enrolled in Pre-K scored significantly higher across all five assessments than children enrolled in Head Start (Table 8.3). However, in terms of vocabulary, children who had been enrolled in Head Start showed greater gains than their Pre-K counterparts. On all other assessments the gains were not statistically different. Boys scored systematically lower than girls on all five assessments; however, the difference in their vocabulary was not significant. Children whose parents were more involved in their class scored significantly higher on all five kindergarten assessments.

Table 8.3
Comparing Effects of Georgia Pre-K and Head Start for Disadvantaged Children on Five Direct Assessments

Comparison Relative to Pre-K	Pre-Math Problem Solving	Letter-Word Recognition	Vocabulary	Story & Print Compre-hension	Basic Skills Mastery
Head Start (compared to Pre-K at K)	**-5.62**	**-6.17**	**-3.40**	**-0.71**	**-0.32**
Fall to Fall Gain for Pre-K	**4.21**	**6.18**	**4.25**	**2.91**	**1.26**
Head Start Gain (compared to Pre-K)	-0.56	-1.93	**3.33**	-0.19	-0.05
Age at Preschool Entry	-3.00	-8.14	-0.86	**1.49**	**0.67**
Boy	**-4.60**	**-3.44**	-1.75	**-0.68**	**-0.35**
Minority	**-5.96**	**5.18**	**-6.75**	**-0.64**	0.13
Mother's Education	1.57	**1.94**	**2.22**	0.17	0.06
Lived with Both Parents Continuously Since Birth	0.75	2.35	-1.95	-0.31	-0.04
Parental Involvement with Preschool	**1.37**	**1.58**	**1.52**	**0.26**	**0.12**

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Selection into Head Start (inverse Mills ratio)	**-5.53**	**-3.31**	**-3.64**	-0.18	-0.17
Intercept	**103.47**	**93.94**	**99.06**	**7.97**	**2.89**

Bold indicates group was significant at the .05 level.

Pre-K children were more ready for kindergarten, more academically skilled, communicated better and behaved better than children who had been enrolled in Head Start, according to their kindergarten teachers. Health and well-being was unrelated to program participation. Mother's education was positively related to all ratings (Table 8.4). When accounting for other factors, teachers were more likely to rate minority students higher on readiness, academic and communication skills, behavior, and health and well-being than White children.

Table 8.4
Comparing Effects of Georgia Pre-K and Head Start for Disadvantaged Children on Kindergarten Teachers' Ratings

Factors affecting Teachers' Ratings	Kindergarten Readiness	Kindergarten Academic Skills	Kindergarten Communica-tion Skills	Kindergarten Behaviors	Kindergarten Health & Well-being
Head Start children compared to Pre-K	**-0.81**	**-0.68**	**-0.67**	**-0.59**	-0.08
Boys	-0.15	-0.19	-0.03	0.04	-0.15
Minority	**1.05**	**0.73**	**0.49**	**0.46**	**0.45**
Age	**1.08**	**0.80**	**0.75**	0.35	**0.58**
Mother's Education	**0.29**	**0.24**	**0.30**	**0.21**	**0.22**
Lived with Both Parents Continuously Since Birth	0.11	0.07	0.08	-0.14	**-0.51**
Parental Involvement with Preschool	0.04	-0.02	-0.03	0.08	0.10
PPVT baseline	0.01	0.01	0.00	-0.01	-0.01
Letter Word Recognition Baseline	0.01	0.01	0.01	0.00	**0.02**

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Problem Solving Baseline	**0.02**	0.01	0.01	0.01	-0.00
Expressive Language Baseline	0.00	-0.01	**0.02**	0.00	**0.02**
Story & Print Comprehension Baseline	0.07	0.06	0.05	**0.08**	0.07
Basic Skills Mastery Baseline	**0.23**	**0.24**	0.13	0.18	-0.15
Selection	**-0.67**	-0.36	**-0.43**	**-0.38**	0.09
Intercept	**5.19**	**4.49**	**5.13**	**4.72**	**5.69**

Bold indicates group was significant at the .05 level.

Finally, two of direct assessment tests that measured language development were administered for the first time in the kindergarten year – CTOPP Elision and CTOPP-Sound Matching. At the time of their kindergarten test, children who had been enrolled in Pre-K scored significantly higher than children who had been enrolled in Head Start on their ability to match sounds but no different on elision or expressive language (Table 8.5). Again, mother's education was consistently associated with higher test scores on measures of both Elision and Sound Matching.

Table 8.5
Comparing Effects of Georgia Pre-K and Head Start for Disadvantaged Children on Three Direct Assessments of Language Skills

Factors Affecting Teachers' Ratings	CTOPP Elision	CTOPP Sound Matching	Expressive Language
Head Start children compared to Pre-K	-0.16	**-0.86**	-0.37
Boys	0.27	**0.42**	0.48
Minority	0.19	-0.09	-1.23
Age	-0.26	-0.73	-1.91
Mother's Education	**0.54**	**0.64**	0.19
Lived with Both Parents Continuously Since Birth	-0.20	0.15	0.26

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Parental Involvement with Preschool	0.11	0.05	0.20
PPVT Baseline	-0.01	**-0.02**	**0.09**
Letter Word Recognition Baseline	0.01	**0.02**	**-0.12**
Problem Solving Baseline	**0.03**	0.01	**0.13**
Expressive Language Baseline	0.02	0.02	**0.35**
Print & Story Comprehension Baseline	**0.16**	0.07	**1.17**
Basic Skills Mastery Baseline	**0.59**	**0.56**	**1.93**
Selection	**-0.60**	**-0.97**	1.70
Intercept	**8.23**	**9.43**	**-11.97**

Bold indicates group was significant at the .05 level.

Conclusion

Georgia's Pre-K Program is providing very effective early education services to children from economically disadvantaged homes. On 10 of 13 assessments and skills ratings, children who attended Georgia's Pre-K Program performed better than very similar peers after controlling for individual, family characteristics, and selection processes. Kindergarten teachers assessed these children's readiness as good, substantially above the rating for their peers. Also, the health and well-being of the children from economically disadvantaged families who attended Georgia's Pre-K were about the same as children who attended Head Start.

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Chapter 9

Preschool Quality and Children's Development

Quality of early childhood education programs affects children's development, but it is not clear that quality has the same impact on all children. Georgia Pre-K classrooms provided consistently high quality classroom environments and interactions, and Head Start classrooms, on average, were rated as high quality (Chapter 4). Private preschool classrooms often scored lower in quality because they resembled more traditional early elementary classrooms in terms of activities and instruction. Since differences in program quality can account for differences in children's outcomes, this chapter focuses on the extent to which the quality of children's preschool experiences made a difference in the development of Georgia's preschoolers.

Georgia's four year-olds clearly benefit from higher quality preschool. On four out of five developmental outcomes (pre-math problem solving skills, receptive vocabulary, story and print comprehension, and basic skill mastery), preschool quality had a significant, positive influence on children's developmental status upon their entry into kindergarten (Table 9.1).

Table 9.1
The Influence of Process Quality on the Developmental Status of Children upon Entry into Kindergarten

Influence on Developmental Outcomes	Pre-Math Problem Solving	Letter-Word Recognition	Vocabulary	Story & Print	Basic Skills Mastery
Process Quality (ECERS-R)	**1.87**	1.06	**2.25**	**0.36**	**0.12**
Head Start (compared to Pre-K at K)	-1.63	**-4.05**	-2.49	**-0.57**	-0.13
Head Start Gain (compared to Pre-K)	0.52	1.00	**3.25**	-0.51	0.09
Private Preschool (compared to Pre-K at K)	**4.19**	**3.67**	**3.24**	**0.65**	**0.33**
Private Preschool Gain	-0.41	-2.25	-0.59	**0.57**	0.08

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(compared to Pre-K)					

Bold indicates group was significantly different from Georgia Pre-K on the coefficient. Coefficients on other independent variables are omitted from this table but are included in Table 9.2.

Preschool quality may have had a stronger influence on development for children enrolled in Georgia Pre-K or Head Start than private preschools, since initial results suggested that some private preschoolers excelled in classrooms with lower quality. However, additional analyses indicated the relation between quality and development was not significantly different across the three preschool program types. High quality preschool had consistent positive benefits for Georgia's four year-olds.

In the previous chapter, the quality of children's preschool experiences was not considered in the analysis of children's development, and findings indicated that there was no difference in the developmental status upon kindergarten entry between private preschoolers and children who attended Georgia Pre-K. After accounting for preschool quality, however, private preschoolers performed better than children from Georgia Pre-K upon entry into kindergarten on all five developmental outcomes (Table 9.1). Thus, children in private preschools who attended a program that was comparable in terms of quality to a Georgia Pre-K class were more ready for kindergarten than the children in Georgia Pre-K.

However, the quality of private preschools and Georgia Pre-K programs were not equal, and children in Georgia Pre-K experienced significantly higher quality early education classrooms. This difference in quality between the two programs appears to have been an equalizing factor in sending children who participated in Georgia Pre-K to kindergarten on an equal footing with their private preschool peers. The remainder of this chapter reviews research on the relation between preschool quality and children's development, describes our methods for studying the relation between preschool quality and development, and presents the results of the developmental analyses.

Preschool Quality and Children's Development

Early studies of the effects of preschool on children's development compared at-risk children who attended preschool with at-risk children who did not attend preschool. This research demonstrated that preschool had immediate positive effects on children's cognitive, language, and social-emotional development that tended to decline over the first few years of school, but social and educational benefits persisted for these children (Haskins, 1989; Barnett, 1992; Barnett, 1995). With the recent growth of Head Start, the creation of many state-funded preschool programs, and the growth of center-based child care, a majority of four year-old children in Georgia attend a formal preschool program. This evaluation of Georgia's Pre-K focused on the impact that the quality of children's

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experiences within preschool has on the academic, language, and socio-emotional development across a wide range of income and family risk factors.

Process quality (introduced in Chapter 4) refers to the nature of the processes that shape children's experiences, including interactions with teachers and other children, activities in which they participate, resources and materials (for example, books and playground equipment), and instructional methods employed by the teacher. Prior research has indicated that the influence of process quality on children's development is not entirely consistent. Some studies report that children who attended higher quality preschools outperformed children who attended lower quality preschools after controlling for other factors that influence children's development (for example, Bryant, Burchinal, Lau, & Sparling, 1994; Peisner-Feinberg & Burchinal, 1997; Peisner-Feinberg, et al., 2001). Other studies have found no measurable effects of the quality of preschool on children's development (for example, Chin-Quee & Scarr, 1994; Deater-Deckard, Pinkerton, & Scarr, 1996). Still other studies report that preschool quality has a stronger influence on development for at-risk children, suggesting that high quality preschool is especially effective for children who experience social and family risk factors (for example, Peisner-Feinberg & Burchinal, 1997; Burchinal, et al., 2000; Peisner-Feinberg, et al., 2001).

Methods for Studying the Relation between Preschool Quality and Children's Development

Three sets of variables were included in the analyses of the relation between preschool quality and children's development: child and family characteristics, preschool quality, and children's development. Child and family characteristics included: sex, race, age, mother's education, lived with both parents continuously since birth, parent participation in school, family receives any means tested benefits, and the type of preschool program the child attended. These variables served as control variables, and the influence of these variables on children's development was considered in order to isolate the influence that the quality of the preschool experience has on children's development. Based on observations of each classroom using the ECERS-R, a widely used, valid, and reliable measure of the overall quality of a preschool program, quality ratings ranging from 1 (unacceptable quality) to 7 (excellent quality) were assigned.

Five developmental outcomes were measured at three time points (beginning of preschool, end of preschool, and beginning of kindergarten). The first three developmental outcomes are standardized assessments of pre-math problem solving (WJ-III, Applied Problems), letter-word recognition (WJ-III, Letter Word), and receptive vocabulary (PPVT). Scores on these assessments are norm-referenced based on the child's age and have a population mean of 100 and standard deviation of 15. The fourth developmental outcome was a measure of story and print concepts, including story comprehension that ranged in scores

from 0-13. The final developmental outcome was a composite measure of skill mastery that reflects whether the child had mastered counting, color naming, and number naming. Scores ranged from 0 (mastered none of these skills) to 3 (mastered all of these skills).

Other directly assessed developmental outcomes that were measured in the Early Childhood Study were not considered in this analysis. Teachers' ratings of children's academic skills, behavior, communication skills, and health/wellness were measured over three points in time. However, as discussed in Chapter 6, there are systematic differences in preschool and kindergarten teachers' ratings of children who attended Head Start. These differences limit the usefulness of teachers' ratings in assessing children's development during preschool and into kindergarten.

The Influence of Preschool Quality on Children's Developmental Status at the Beginning of Kindergarten

Four out of the five developmental outcomes that were examined in this study were positively associated with higher quality preschool programs (Table 9.2). For each one-point increase in preschool quality along the 1 to 7 scale, children's performance at the beginning of kindergarten increased 1.87 points on pre-math problem solving and 2.25 points on vocabulary. The overall quality of preschools in this study varied by as much as four and a half points (range=1.3-5.8), indicating that children who attended the highest quality preschool were likely to have scored 8-10 points higher, on average, on these standardized assessments at the beginning of kindergarten than children who attended the lowest quality preschool. Preschool quality was also positively associated with letter-word recognition; however, the influence of quality was not significant.

Higher quality preschool was also related to children's comprehension of story and print concepts. For each one-point increase in preschool quality, children scored one-third point higher along the 0-13 rating scale at the beginning of kindergarten. The final developmental outcome was the number of basic skills that children had mastered ranging from 0 to 3. Upon entry into kindergarten, children who attended higher quality preschools had mastered significantly more academic skills than children enrolled in lower quality programs.

Table 9.2
The Influence of Process Quality on the Developmental Status of Children upon Entry into Kindergarten

Influence on Developmental Outcomes	Pre-Math Problem Solving	Letter-Word Recognition	Vocabulary	Story & Print	Basic Skills Mastery
Process Quality (ECERS-R)	**1.87**	1.06	**2.25**	**0.36**	**0.12**
Head Start (compared to Pre-K at K)	-1.63	**-4.05**	-2.49	**-0.57**	-0.13
Fall to Fall Gain for Pre-K	**2.51**	**3.14**	**3.22**	**2.99**	**1.00**
Head Start Gain (compared to Pre-K)	0.52	1.00	3.25	-0.51	0.09
Private Preschool (compared to Pre-K at K)	**4.19**	**3.67**	**3.24**	**0.65**	**0.33**
Private Preschool Gain (compared to Pre-K)	-0.41	-2.25	-0.59	**0.57**	0.08
Boys	-1.35	**-3.17**	0.17	**-0.65**	**-0.25**
African American	**-9.33**	0.14	**-9.18**	**-1.19**	-0.12
Other Minority	**-4.09**	2.69	**-6.70**	**-0.63**	0.07
Mother's Education	**2.39**	**2.32**	**2.43**	**0.33**	**0.11**
Lived with Both Parents Continuously Since Birth	0.33	0.60	-1.44	-0.21	-0.05
Parental Involvement with Preschool	**1.29**	**1.34**	**1.36**	**0.21**	**0.10**
Family Received Means Tested Benefit	-0.18	-2.09	-1.82	-0.10	**-0.14**
	-4.91	**-8.25**	-1.33	**1.78**	**0.57**

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Age at Preschool Entry					
Intercept	**95.14**	**95.1405**	**97.15**	**8.42**	**2.66**

Bold indicates group was significantly different from Georgia Pre-K on the coefficient.

In addition to these analyses, the effects of program quality on the children in each of the three programs were examined individually to assess if quality affected the development of one group more or less than the others. None of the programs showed significantly different growth (slopes) that the others, which indicated that quality effects on children's developmental gains were reasonably consistent across all three programs.

In Chapter 7, preschool quality was not considered in the analyses, and findings indicated that there was no difference upon kindergarten entry in the developmental status of children who attended Georgia Pre-K and children who attended private preschools. When quality was considered, children who attended private preschools had significantly higher scores at kindergarten entry on all five developmental outcomes as compared to children who attended Georgia Pre-K. For example, on all three of the standardized assessments, private preschoolers who attended a preschool that was comparable in quality to a Georgia Pre-K class scored over three points higher at the beginning of kindergarten than children who attended Georgia Pre-K. Preschool quality in the Georgia Pre-K Program measured by the ECERS-R was, on average, 1.2 points higher than the quality of private preschools (4.7 for Georgia Pre-K and 3.5 for private preschools). This systematically higher preschool quality experienced by children enrolled in Georgia Pre-K resulted in a 2-3 point boost on pre-math problem solving abilities and vocabulary ability for these children. Thus, the high quality of Georgia's Pre-K Program is likely to have minimized the developmental differences at entry into kindergarten between private preschoolers and children who participated in Georgia Pre-K.

Conclusions

With standardized scores for children entering preschool as four year-olds below national norms and high levels of family risk factors in Georgia, a compelling case exists for the need for effective preschool programs. High quality preschool programs can provide a boost in cognitive, language, and social-emotional development. Evidence presented in this chapter supported the linkage between high quality preschool and kindergarten readiness among young children in Georgia, indicating that high quality programs have the potential to put Georgia's children back on track with respect to their peers nationally.

Federal and state governments spend billions of dollars each year to provide high quality preschool programs for four year-old children. In 2001, $6.2 billion was spent for Head Start that served over 900,000 at-risk children aged 3-5.

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Each year in Georgia, about half of the 120,000 four year-old children attend the Georgia Prekindergarten Program, the lottery-funded public preschool program for which the state allocates about $250 million per year. Georgia's efforts to offer high quality early childhood education services were supported by the finding that overall quality of preschool programs was high on several widely used measures of process quality. Georgia's Pre-K Program was distinguished by particularly sensitive and positive interactions between teachers and children (See Chapter 4 for details) and the most consistent high quality. Head Start program quality in Georgia was particularly high in terms of individualizing instruction.

Findings presented in this chapter indicate that high quality preschool pays off for young children. Regardless of the type of preschool program that children attended in Georgia, the quality of the program had a significant impact on children's cognitive and language development. High quality allowed children in Pre-K and Head Start to make up some of the differences with children in private preschool by the beginning of kindergarten, but these gaps were not closed for children in Head Start. Measures such as effective regulation and monitoring may have been key to higher quality preschools that in turn produced measurable benefits in the development of children who these programs serve.

Chapter 10

Parent Attitudes about Preschool and Parent Involvement at Home and in Preschool

Parent involvement in their children's learning experiences at home and at school plays an important role in the development of young children. Furthermore, getting parents more involved in their children's education is an explicit goal of many preschool programs and a major emphasis of Head Start. This chapter specifically examines parents' activities with their children, involvement with their child's school, and general attitudes toward preschool. Overall, parents reported participating in a wide range of learning activities with their children, feeling comfortable interacting with the staff of their child's preschool, and being moderately involved in school activities such as volunteering. Compared to parents of Georgia Pre-K and private preschool children, parents of Head Start children participated less frequently in learning activities at home, such as reading, playing outdoor games, and completing chores. However, parents of Head Start children attended meetings at school with their children's preschool teacher more frequently than parents of Georgia Pre-K and private preschool children. The remainder of this chapter describes parents' activities with their child's learning at home, involvement in preschool, and attitudes about preschool across the three types of preschool programs.

Parent Involvement at Home

Two parent surveys measured the frequency that parents participated in a number of learning activities within the home. These activities included reading, playing games, and exercising together. Results from the first parent survey (fall 2001) suggest that there were no differences across the program types in the frequencies with which parents reported singing songs, playing indoors (toys, counting games, construction materials), and playing outdoors with their children (Table 10.1). However, parents of Head Start children read or told stories to their children less frequently than parents of children attending Georgia Pre-K or private preschool.

Table 10.1
Average Parent Involvement in Home Learning Activities by Program Type (Fall 2001)

Frequency of Home Learning Activities Range: Never (1) – Every day (5)	Georgia Pre-K n=294	Head Start n=102	Private n=118	Overall n=514
Read or tell child a story [c]	3.9	3.5	4.1	3.97
Sing songs or play music [a]	4.3	4.1	4.3	4.3
Play with toys or games indoors together [a]	3.9	3.9	4.1	4.0
Play outdoors or exercise together [a]	3.6	3.6	3.7	3.6
Play counting games like singing songs with numbers [a]	3.7	3.5	3.6	3.6
Build something or play with construction toys [a]	3.0	3.0	3.2	3.1

[a] The means for all three groups do not differ significantly from one another.
[c] The mean for Head Start differs significantly from the means for Georgia Pre-K and private preschool.

The second parent survey (spring 2002) also measured the frequency that parents participated in a number of home learning activities with their child (Table 10.2). These included some of the interactions previously surveyed, but also inquired about participation in sponsored events (such as sports or musical activities) and more detailed home projects (arts and crafts, and household chores). Parents of children in the three groups did not report significant differences in playing games, solving puzzles or attending events sponsored by community, ethnic or religious groups. However, compared to parents of Georgia Pre-K and private preschool children, parents of Head Start children reported participating less frequently with their child in completing household chores and playing outside together. Parents of children enrolled in private preschools reported working more frequently on arts and crafts and participating in sports and musical activities with their child than parents of Head Start children. It is important to note that the economic circumstances of many of the families whose children are enrolled in Head Start may limit participation in activities such as sporting events where financial commitments are required.

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Table 10.2
Average Parent Involvement in Learning Activities by Program Type (Spring 2002)

Frequency of Home Learning Activities Range: Never (1) – Five or more times per month (4)	Georgia Pre-K n=203	Head Start n=56	Private n=81	Overall n=340
Worked on arts and crafts projects with your child [f]	2.9	2.7	3.1	2.9
Taken your child to or participated with your child in a sports or musical activity [f]	3.0	2.8	3.3	3.0
Played games or solved puzzles with your child [a]	3.4	3.3	3.4	3.4
Attended an event sponsored by a community, ethnic, or religious group [a]	2.7	2.5	2.9	2.7
Participated in household activities with your child such as cooking, cleaning, setting the table, or caring for pets [c]	3.6	3.3	3.6	3.6
Played outdoors or exercised together [c]	3.6	3.3	3.7	3.6

[a] The means for all three groups do not differ significantly from one another.
[c] The mean for Head Start differs significantly from the means for Georgia Pre-K and private preschool.
[f] The mean for Head Start differs significantly from the mean for private preschool.

Parent Involvement in Preschool

Across the three preschool programs types, there are different expectations for the frequency that parents are involved with their children's preschool. Within Head Start, parent involvement in school is a mandated component of the program that may include parent activities such as: classroom volunteering, home visits, adult education classes for parenting, job training, and activities promoting literacy. While not mandated, parents of children in Georgia Pre-K are encouraged to attend two parent-teacher conferences per year, and teachers are encouraged to provide parents with individualized information on their child's progress. Standards set for parents' involvement in private preschools vary

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across the different preschools. Within this sample, the relatively strong emphasis on parent involvement in Head Start was evident among one aspect of parents' involvement in school. Parents of Head Start children attended scheduled conferences with teachers more frequently than parents of children enrolled in Georgia Pre-K and private preschools (Table 10.3).

Table 10.3
Parent Involvement in Preschool by Program Type

Frequency of Preschool Involvement Range: Never (1) – Once a week or more (4)	Georgia Pre-K n=203	Head Start n=56	Private n=81	Overall n=340
Attended a scheduled parent-teacher conference regarding your child's progress or performance [c]	2.2	2.6	2.0	2.2
Talked informally with your child's teacher [a]	3.0	2.8	3.1	3.0
Volunteered or helped out in your child's class during the preschool year [a]	2.1	2.1	2.1	2.1

[a] The means for all three groups do not differ significantly from one another.
[c] The mean for Head Start differs significantly from the means for Georgia Pre-K and private preschool.

Parent Attitudes about Preschool

While parents of Head Start children reported the highest level of overall satisfaction with their children's preschool experiences, there was little difference between the program types in parents' ratings of satisfaction with specific aspects of their child's preschool experiences (Table 10.4). For example, there was no difference between the program types in parents' perceptions of the accessibility of preschool teachers, the approachability of preschool directors, and whether the preschool director and teacher had the best interest of the children in mind. Compared to parents of children enrolled in private preschools, parents of Head Start children reported that preschool directors were less available to communicate with them.

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Table 10.4
Parent Satisfaction with Characteristics of Preschool by Program Type

Preschool Characteristic Range: Strongly disagree (1) – Strongly agree (4)	Georgia Pre-K n=203	Head Start n=56	Private n=81	Overall n=340
The teacher always has the best interests of my child in mind [a]	3.6	3.4	3.5	3.5
The director of the preschool program always has the best interests of my child in mind [a]	3.3	3.4	3.5	3.4
My child's preschool teacher always finds the time to meet me [a]	3.5	3.5	3.5	3.5
The director is always available to communicate with me [f]	3.2	3.1	3.4	3.2
I find it easy to approach the preschool director [a]	3.2	3.2	3.3	3.2
I have learned a lot from the preschool staff [a]	3.2	3.3	3.1	3.2

[a] The means for all three groups do not differ significantly from one another.
[f] The means for Head Start differ significantly from the means for private preschool.

Another indication of the effects of preschool is related to parents' attitudes about their children's experiences. As a part of the Early Childhood Study, parents were asked to rate their satisfaction with their child's preschool experiences along a 1 to 10 response scale that ranged from very unsatisfied (1) to very satisfied (10). The average overall rating of parents' satisfaction was 9.0 and over half of the parents (56 percent) rated their children's preschool experiences as a 10, indicating that they were highly satisfied with the various preschool programs that their children attended. While there were no statistically significant differences in the average level of parents' satisfaction across the program types, 70 percent of parents of Head Start children rated their children's experiences as a 10, compared to 57 percent of parents of Georgia Pre-K children and 45 percent of parents of private preschool children. The percentage of parents who

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rated their children's preschool experiences as a 10 was significantly different for Head Start than for private preschools.

As a part of the Georgia Prekindergarten Longitudinal Study (GPKLS), a cohort of over 3,500 children who attended the Georgia Pre-K Program during 1996-1997 were studied for five years to evaluate the effects of participating in this program. During the preschool year, parents of children participating in the GPKLS completed a survey that measured their overall satisfaction with the Georgia Pre-K Program along the same 1 to 10 rating scale that was used in this study. When comparing the ratings made by this group of parents with those made by parents of children in the current study who attended the Georgia Pre-K Program, there were no appreciable differences in parents' ratings of satisfaction. In 1996-1997, the average rating of parents' satisfaction with the Georgia Pre-K Program was 9.06, and 87 percent of parents rated their satisfaction as 8 or higher (Basile, Henderson & Henry, 1998). Among the cohort of children in the Early Childhood Study who attended Georgia Pre-K during 2001-2002, the average rating of parents' satisfaction was 8.96, and 86 percent of parents rated their satisfaction as 8 or higher.

While policies at the federal and state level have increased the emphasis on academics in preschool, parents indicated that they consider it equally importance that their child has opportunities for both academic instruction and social interaction. Using a rating scale that ranged from not important at all important (1) to very important (10), parents rated how important it was that their child received instruction in preschool that would prepare them academically for elementary school. Along the same rating scale, parents were also asked how important it was that their child interacts daily with other children. Parents responded that academic preparation (average = 9.68) and social interactions (average = 9.61) were both highly important characteristics of their child's preschool experiences. There were no statistically significant differences in parents' attitudes toward academic preparation and social interactions across the three preschool program types, indicating their desire for a dual emphasis.

Conclusion

Parents were highly satisfied with their children's overall experiences within preschool, as well as with their children's preschool teachers and preschool directors. While there were no differences in parents' attitudes about preschool across the program types, there were significant differences in parenting behaviors for children who attended Georgia Pre-K, Head Start, and private preschools. Parents of children who attended Head Start were less involved in their children's education at home than parents of children enrolled in Georgia Pre-K and private preschools. However, parents of Head Start children had greater involvement within preschool, consistent with a major goal of the Head Start program.

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Chapter 11

Summer Learning Loss

During the summer when children are less likely to be in programs focused on school readiness, gains in skills that occurred during the school year can slow or even be reversed. Evidence of slower developmental gains was presented in some scores on direct assessments (Chapter 5) and in comparisons of the matched sample of Head Start and private preschool children (Chapter 8). The lengthy summer break can cause students to lose ground, academically, over the summer, a phenomena often referred to as "summer learning loss." These losses may be more serious for children from high-risk families who are more likely to enter kindergarten behind their peers from the beginning.

Based on previous evidence, summer learning loss has been a problem that has contributed to increased disparities between disadvantaged children and their more advantaged peers. Hayes and Grether (1983) reported that a seven-month difference in reading achievement between poor and middle-class students in the second grade widened to two years and seven months by the end of the sixth grade. This gap grew in spite of the fact that the two groups made similar progress during the school year. Hayes and Grether concluded that "the differential progress made during the four summers between second and sixth grade accounts for upwards of 80 percent of the achievement difference between economically advantaged and poor communities" (Bracey, 2002).

In a review of summer learning loss, Allington and McGill-Franzen (1992) conducted a comprehensive analysis of thirteen studies that analyzed summer learning loss. The authors concluded that the cumulative effect of summer learning loss in grades 1 though 6 add up to a difference of 1 and ½ years (Bracey, 2002). In a study of Title I programs, Allington and McGill-Franzen (1992) found that gains measured by spring-to-spring testing were much smaller than those measured by fall-to-spring testing. This finding implies summer learning loss and leads the researchers to conclude: "Title I interventions during the regular school year alone may not sustain their relatively large Fall/Spring achievement improvements" (Bracey, p. 1, 2002).

Publicly funded preschool programs in Georgia operate on an academic calendar year. Children are less likely to have been enrolled in an enriched academic program throughout the summer months, thereby creating the potential for summer learning loss during the crucial period leading up to their entry into kindergarten. Since Georgia's preschoolers were tested at the end of preschool and again at the beginning of their kindergarten year, summer learning loss experienced by these children can be examined directly.

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Overall, there was a modest decline in estimated standard scores in areas of receptive language and problem solving; this decline was evident after the children's scores were adjusted to account for the period of time they remained in preschool following the testing period in the spring and the period of time before testing occurred in their kindergarten year. However, the academic skills test for letter-word identification saw a 7-point drop in estimated standard scores between the end of preschool and the beginning of kindergarten.

The remainder of Chapter 11 is divided into 3 sections. The first section will examine the differences in learning loss across program type. The second section will examine factors that may be related to summer learning loss. The final section addresses policy suggestions to stave off summer learning loss.

Differences in Summer Learning Loss by Program Type

In order to gauge summer learning loss, we compared the estimated averages of standardized tests administered at the end of the preschool year (spring 2002) with the estimated means of the same standardized tests administered during the beginning of the kindergarten year (fall 2002). These comparisons were adjusted for the period between the spring test date and the end of the school year, and from the beginning of the kindergarten school year to the fall test date.

Children lost ground on the word and letter recognition between the last day of preschool and the first day of kindergarten and their skills remained flat for the vocabulary test and problem solving, two tests in which children in Georgia were behind the national norms (Table 11.1). Overall, the estimated mean score for the Peabody Picture Vocabulary Test (PPVT) at kindergarten entry maintained the preschool ending score, and the Woodcock Johnson Applied Problems test, which measures basic math and counting skills, showed a slight but insignificant increase in these skills -- .25 points. The language assessment, which measures letter and word recognition, showed a 6.43 decrease in estimated mean test scores from preschool end to kindergarten entry. However, story comprehension improved over the summer by .72 in the estimated mean test score.

The children enrolled in Head Start showed greater amounts of summer learning loss than other children, especially in letter and word recognition. For Head Start students, their estimated mean score dropped by nearly 9 points, compared to a drop of approximately 5.5 for both Pre-K and private preschool students. Head Start children began kindergarten nearly 15 points (one standard deviation) behind the national norm for children their age. While private preschool children showed nearly the same percentage drop as Pre-K children, their fall estimated mean score was higher than the mean score for both Pre-K and Head Start children.

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Head Start students did gain nearly 2 points in mean scores on both receptive language skills (PPVT) and story comprehension (Story and Print). However, while both Pre-K students and private preschool students saw a small percentage drop in their fall estimated score on the PPVT, their fall scores were still higher than the fall scores for Head Start students.

Finally, concerning pre-math problem solving skills (Applied Problems), Pre-K students showed a summer gain of 2.5 points, while Head Start students and private preschool students saw a summer loss (1.6 and 2.6 respectively). Likewise, on the mastery skills, Pre-K students gained .16 points in their mean score while both Head Start and private preschool students showed evidence of slight summer learning loss (-.09 and -.12 respectively).

Table 11.1
Summer Learning Loss by Program Type

Program Type		PPVT	Letter Word	Applied Problems	Story & Print	Skills Mastery
All preschool children	Spring '02 estimated mean	95.22	103.99	96.72	5.04	1.95
	Fall '02 estimated mean	95.19	97.56	96.97	5.76	2.00
	Difference in mean	-.36	-6.43	.25	.72	.05
Pre-K children	Spring '02 estimated mean	97.23	104.35	96.02	5.19	1.94
	Fall '02 estimated mean	96.03	99.13	98.44	5.23	2.10
	Difference in mean	-1.2	-5.22	2.42	.04	.16
Head Start children	Spring '02 estimated mean	88.58	95.45	89.36	4.06	1.50
	Fall '02 estimated mean	90.56	86.54	87.71	5.97	1.41
	Difference in mean	1.98	-8.91	-1.65	1.91	-.09
Private preschool children	Spring '02 estimated mean	98.83	109.29	103.63	3.31	2.64
	Fall '02 estimated mean	96.46	103.98	100.99	7.28	2.52
	Difference in mean	-2.37	-6.0	-2.64	3.97	-.12

Which Children are more Affected by Summer Learning Loss?

Previous research has indicated that summer learning loss is greater for low income children than middle to high income children. To better understand the impacts of summer learning loss in Georgia, several characteristics of the children and their families were analyzed, including age, sex, race/ethnicity, mother's level of education, parent participation in school, families received means tested benefits, and child has lived with both parents since birth.

In addition, the effects of schooling, after spring testing and before fall testing were examined in the analysis. Summer learning loss should be measured from

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the last day of the previous school year to the first day of school the following fall. The spring 2002 data collection period was conducted between April 11, 2002 and May 24, 2002. To account for learning that occurred between the test date and the end of year, the number of days left in the school year after the test date were included in the analysis. Fall testing took place between September 6, 2002 and November 1, 2002. To account for any learning that took place at the very beginning of kindergarten, the number of days the child had been in school before the test date was also included.

After accounting for other factors included in the analysis, African American children show larger amounts of summer learning loss than White children across all tests except for mastery (Table 11.2). Moreover, the amount of time in kindergarten was significantly related to higher scores on two skills tests, receptive language and problem solving. After accounting for differences in the characteristics of children and families in the programs, the programs showed no effect in levels of summer learning loss except for mastery. Head Start children showed larger amounts of summer learning loss related to mastery skills compared to Pre-K children. Overall, the test score from spring 2002 was the greatest factor in determining the fall score. Mothers with higher levels of education appeared to counteract summer learning loss in receptive language, however not for word and letter recognition or problem solving skills.

Table 11.2
Explaining Summer Learning Loss[2]

Predictors		PPVT	Letter-Word	Applied Problems	Story & Print	Skills Mastery
Spring '02 Score		.58**	.70**	.71**	.58**	.42**
Time in school until test (fall '02)		3.89	30.43**	12.27*	3.99**	.62
Days in school after test (sp. '02)		5.42	-3.85	4.34	-3.13	-.77
Sex (Boy =1)		.46	-3.85	-.91	-.21	.06
Race	African-American v. White	-2.82**	-1.64*	-2.92**	-1.97	.11
	Other v. White	-.63	.17	-.52	-.08	.29*
Kindergarten classroom rating (ECERS-R)		.34	-.57	-.66	-.13	.09
Risk Index Factors	Mother's education	1.27**	.38	.34	.36**	.00
	Parent participation	-.45	.09	.93**	-.12	.03
	Means tested programs	-1.71	-.92	.02	-.15	-.04
	Live with both parents	-.08	.63	1.02	.25	.03
Program: (Head Start v. Pre-K)		1.09	-.87	-1.17	-1.22	-.25*
Program: (Private v. Pre-K)		.60	-.14	-1.07	.04	.26*
Total Variance Explained (R^2)		.63	.67	.65	.41	.32

*p<.05
**p<.01

How to Protect Against Summer Learning Loss

As a whole, the evidence reported supports the idea that children need programs that enhance and reinforce their development over the summer or the children lose a portion of their knowledge and skills learned during the school year. The greatest loss, across all program types, is in letter-word recognition. Head Start children, in particular, lose ground at a greater rate than children enrolled in other types of preschool programs. However, subsequent analysis shows that this is mainly attributable to family and individual characteristics. Alarmingly, African American children were shown to lose more ground than other children during

[2] The coefficients are based on a period of one year. To calculate summer effects, coefficients must be corrected by a factor of .239.

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the summer. It seems the seeds for the gap between minority and White test scores are planted during absences from high quality preschool programs during summer months.

As Georgia's four and five year-old children end their preschool year slightly behind the national average, it is important to ensure they do not fall further behind during the summer months. By the fall testing period, they began to make up this ground, but not for all skills. This evidence strongly indicates that the impacts of summer learning loss could be addressed by increasing the quality of summer programs that focus on developing and maintaining pre-reading and pre-math skills, especially for African American children and children from high risk families.

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